

Utah State University

DigitalCommons@USU

All Graduate Theses and Dissertations

Graduate Studies

5-2018

Telepsychotherapy for the Treatment of Trichotillomania: A Randomized Controlled Trial

Eric B. Lee

Utah State University

Follow this and additional works at: <https://digitalcommons.usu.edu/etd>



Part of the [Psychology Commons](#)

Recommended Citation

Lee, Eric B., "Telepsychotherapy for the Treatment of Trichotillomania: A Randomized Controlled Trial" (2018). *All Graduate Theses and Dissertations*. 7012.

<https://digitalcommons.usu.edu/etd/7012>

This Dissertation is brought to you for free and open access by the Graduate Studies at DigitalCommons@USU. It has been accepted for inclusion in All Graduate Theses and Dissertations by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.



TELEPSYCHOTHERAPY FOR THE TREATMENT OF TRICHOTILLOMANIA:
A RANDOMIZED CONTROLLED TRIAL

by

Eric B. Lee

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

Michael P. Twohig, Ph.D.
Major Professor

Michael E. Levin, Ph.D.
Committee Member

Melanie M. Domenech Rodríguez, Ph.D.
Committee Member

Rick A. Cruz, Ph.D.
Committee Member

Karen F. Muñoz, Ed.D.
Committee Member

Mark McLellan, Ph.D.
Vice President for Research and
Dean of the School of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2018

Copyright © Eric B. Lee 2018

All Rights Reserved

ABSTRACT

Telepsychotherapy for the Treatment of Trichotillomania:

A Randomized Controlled Trial

by

Eric B. Lee

Utah State University, 2018

Major Professor: Dr. Michael P. Twohig
Department: Psychology

Trichotillomania is defined as recurrent pulling of one's hair that results in distress and negative effects on general functioning and quality of life. Estimates of trichotillomania lifetime prevalence generally range from approximately 1% to 3% and it is likely as common as disorders such as obsessive-compulsive disorder and agoraphobia. Yet, quality treatment for trichotillomania is often difficult to find as many mental health professionals are uninformed about the disorder and its treatment. Moreover, mental health services in general are inaccessible to many with estimates suggesting that 96.5 million people do not have access to adequate services. The use of telepsychology has been an effective method for disseminating treatment services for a variety of mental health conditions. However, no research has examined the effectiveness of telepsychology to treat trichotillomania.

The current study reports the results of a randomized clinical trial of Acceptance and Commitment Therapy Enhanced Behavior Therapy for the treatment of trichotillomania delivered by way of telepsychology. The study compared an active treatment condition ($n = 12$) to a waitlist control condition ($n = 10$). Results showed

significant reductions in hair pulling severity from pre- to post-treatment compared to the waitlist condition.

Participants in the waitlist condition received the same treatment as participants in the treatment condition following the waitlist period. All participants were then combined to examine overall treatment effects from pre-treatment to a 12-week follow-up. The effect of treatment on hair pulling severity was still significant at follow-up, however the effect was not as strong as at post-treatment. Conversely, the effect on quality of life was maintained and even increased following post-treatment. Additional measures of psychological flexibility, perceived shame, and valued action also saw significant changes from pre-treatment to follow-up. The findings demonstrate that telepsychology is a viable option to disseminate treatment for trichotillomania. Implications, limitations, and future research directions are discussed.

(131 pages)

ACKNOWLEDGMENTS

To my greatest professional mentors. Chad Wetterneck—for seeing something in me and patiently helping me find it. For your compassion and life lessons. Michael Twohig—for your unwavering trust and confidence in me. For your scientific acumen and pragmatism. For pushing me in every way. Thank you both. I owe my ability to complete this project to you.

To my lab colleagues—for brain storming sessions and collaboration. For your various ideas and opinions and patience with my own. For your friendship and constant support. Thank you.

And most importantly, to Rebecca—for the long nights, the pep talks, the comic relief, and the wisdom. Thank you. These years (and years) of education adventures would not have been possible without your sustained strength and advocacy. This truly has been a joint effort. I can't wait for the adventures to come...

Eric B. Lee

TABLE OF CONTENTS

| | Page |
|---|------|
| ABSTRACT..... | iii |
| ACKNOWLEDGMENTS | v |
| LIST OF TABLES | viii |
| LIST OF FIGURES | ix |
| CHAPTER | |
| I. STATEMENT OF THE PROBLEM | 1 |
| II. REVIEW OF THE LITERATURE | 4 |
| Trichotillomania..... | 4 |
| Prevalence | 6 |
| Cultural and Racial Considerations | 6 |
| Sex Distribution | 8 |
| Treatment | 9 |
| Telepsychology | 15 |
| Conclusion | 18 |
| III. METHOD | 19 |
| Participants..... | 19 |
| Design | 23 |
| Procedures | 24 |
| Telepsychology Procedures | 25 |
| Treatment | 26 |
| Measures | 26 |
| Diagnostic Assessments and Clinical Tools | 26 |
| Primary Outcome Measures..... | 28 |
| Secondary Process Measures | 29 |
| Treatment Acceptability Measures | 31 |
| Data Analytic Strategy | 32 |
| Primary Analysis..... | 33 |
| Secondary Analysis..... | 34 |
| IV. RESULTS | 35 |
| Treatment Adherence..... | 35 |
| Examination of Data | 36 |
| Differences Between Conditions | 37 |
| Condition Comparison Summary | 39 |
| Effects on Hair Pulling Severity | 42 |
| Effects on Quality of Life | 42 |
| Effects on Psychological Flexibility | 42 |
| Effects on Shame | 43 |
| Effects on Values | 44 |

| | |
|--|-----|
| Combined Follow-up Analysis | 45 |
| Effects on Hair Pulling Severity | 45 |
| Effects on Quality of Life | 45 |
| Effects on Psychological Flexibility | 46 |
| Effects on Shame | 46 |
| Effects on Values | 47 |
| Telehealth Factors | 50 |
| Working Alliance | 51 |
| Treatment Satisfaction | 54 |
| V. DISCUSSION | 56 |
| Primary Outcomes | 56 |
| Secondary Outcomes | 57 |
| Applied Implications | 58 |
| Limitations | 62 |
| Future Directions | 64 |
| REFERENCES | 66 |
| APPENDICES | 83 |
| Appendix A: Recruitment Flier | 84 |
| Appendix B: Phone Screening Form | 86 |
| Appendix C: Informed Consent | 89 |
| Appendix D: Measures | 93 |
| Appendix E: Treatment Outline | 107 |
| CURRICULUM VITAE | 111 |

LIST OF TABLES

| Table | Page |
|---|------|
| 1. Participant Characteristics..... | 20 |
| 2. Assessment Schedule | 23 |
| 3. Descriptive Statistics with Welche's <i>t</i> -Test or Pearson's Chi Squared Comparisons Between Groups | 38 |
| 4. Outcome Means and Standard Deviations at Times 1 and 2 By Condition | 40 |
| 5. Combined Outcome Means and Standard Deviations at Pre-, Mid-, and Post-Treatment and 3 Month Follow-Up | 48 |
| 6. Mixed Models Repeated Measures Results for Changes Withing Treatment | 50 |
| 7. Participant Interest in Telehealth Treatment | 51 |
| 8. Client Satisfaction and Working Alliance Means and Standard Deviations | 53 |

LIST OF FIGURES

| Figure | Page |
|---|------|
| 1. Participant Flowchart | 22 |
| 2. Line Graphs of Variables of Interest from Time 1 to Time 2 by Group | 41 |
| 3. Line Graphs of Variables of Interest from Pre-Treatment to Follow-Up | 49 |
| 4. Boxplots with Individual Participant Data Points of Client- Rated Working Alliance Scores at Mid- and Post-Treatment by Subscale | 54 |
| 5. Boxplots with Individual Participant Data Points of Client- Rated Treatment Satisfaction Scores at Mid-Treatment, Post- Treatment, and Follow-Up | 55 |

CHAPTER I

STATEMENT OF THE PROBLEM

Trichotillomania is characterized by repetitive hair pulling that leads to noticeable hair loss and causes significant distress and social or functional impairment (American Psychiatric Association, 2013). The effects of trichotillomania are often significant and can impair interpersonal, social, occupational, and/or academic functioning (Woods et al., 2006a). The best estimates of the prevalence of trichotillomania range from 0.6% to 3.4% of adults, dependent on how restrictively one defines the disorder (Christenson, Pyle, & Mitchell, 1991b; Duke, Keeley, Geffken, & Storch, 2010; Stanley, Borden, Bell, & Wagner, 1994). This indicates that trichotillomania is likely as common as other psychological disorders, such as obsessive-compulsive disorder and agoraphobia. Despite this, trichotillomania continues to be misunderstood by many mental health professionals. For example, a survey of over 500 psychologists and physicians in the United States found that professionals are relatively uninformed about trichotillomania and its treatment (Marcks, Wetterneck, & Woods, 2006). Only 54% of the providers surveyed thought cognitive behavioral therapy was an effective treatment option for trichotillomania and the same amount incorrectly believed that those with trichotillomania experienced obsessive-like thoughts about hair pulling and that it was a subtype of obsessive-compulsive disorder. Additionally, the majority of the professionals surveyed did not have referral resources to direct those with trichotillomania to find quality help.

Because of professionals' lack of knowledge and training in this area, it can be difficult to find quality treatment for trichotillomania. Finding professionals who are

experienced and knowledgeable about trichotillomania and its treatment may be impossible depending on location. The United States Department of Health and Human Services (2014) estimated that there are approximately 4,000 Mental Health Professional Shortage Areas in the United States that include 96.5 million people who do not have access to adequate mental health services. In Utah alone, there are 37 designated Mental Health Professional Shortage Areas, meaning that there are an insufficient number of mental health professionals practicing in those areas to meet the demand of care. This lack of adequate mental health care at both national and state levels presents a significant problem for the treatment of trichotillomania in rural and urban areas.

The problem is two-fold. There is a need for more mental health care providers who are knowledgeable about the treatment of trichotillomania and a need for quality treatments provided by these professionals to reach those suffering from trichotillomania. The proposition of training more mental health professionals to provide quality care for those with trichotillomania is one useful avenue that should be pursued, but other options might be pursued in concert. The problem of providing care throughout the state, including those Mental Health Professional Shortage Areas, can also be addressed through the use of technology and telehealth psychotherapy practices.

The use of telehealth has been shown to be an effective method of treating a wide variety of mental health conditions including, post-traumatic stress disorder (Gros, Yoder, Tuerk, Lozano, & Acierno, 2011), schizophrenia (Rotondi et al., 2005), alcohol abuse (Frueh, Henderson, & Myrick, 2005), insomnia (Lichstein et al., 2013), Tourette's syndrome (Himle, Olufs, Himle, Tucker, & Woods, 2010), agoraphobia (Alcañiz et al., 2003), and eating disorders (Shingleton, Richards, & Thompson-Brenner, 2013).

Unfortunately, no research has been conducted on the effectiveness of telehealth to treat trichotillomania.

Telehealth psychotherapy appears to be a logical choice for addressing the problem of areas without access to quality trichotillomania treatment. The purpose of the current study is to examine the effectiveness of providing evidence-based treatment for trichotillomania through the use of telepsychology using a randomized, waitlist-control design.

CHAPTER II

REVIEW OF THE LITERATURE

Trichotillomania

Trichotillomania has previously been classified as an impulse-control disorder (American Psychiatric Association, 2000), but is currently listed as an obsessive-compulsive or related disorder in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; American Psychiatric Association, 2013). The diagnostic criteria for trichotillomania include: (a) hair loss resulting from the recurrent pulling out of one's hair; (b) repeated attempts to decrease or stop hair pulling; (c) clinically significant distress or impairment in social, occupational, or other important areas of function as a result of the hair pulling behavior; (d) the hair pulling behavior is not better explained by another medical condition; and (e) the behavior is not better explained by the symptoms of another mental disorder. The dysfunctional effects of trichotillomania may include significant social interference, such as the inability to maintain close relationships with others; occupational interference, such as avoiding job interviews or position advancement; academic functioning, such as missing school or having difficulties studying due to pulling; and affective disturbances, such as depression, anxiety, or stress (Grant et al., 2017; Wetterneck, Woods, Norberg, & Begotka, 2006; Woods et al., 2006a). Additionally, those with trichotillomania generally have lower overall quality of life compared to healthy controls (Odlaug, Kim, & Grant, 2010). Functional impairment appears to be related to the severity of the hair pulling symptoms (Woods et al., 2006a).

In addition to functional impairment, other notable physical afflictions are often present in trichotillomania, including follicle damage, skin infections, scalp irritation or bleeding, and repetitive strain injury (Duke et al., 2010; O'Sullivan, Keuthen, Jenike, & Gumley, 1996). Furthermore, an estimated 5 to 18 percent of those with trichotillomania engage in trichophagy which involves the consumption of hair after pulling (Christenson et al., 1991b; Schlosser, Black, Blum, & Goldstein, 1994). This can lead to formations of hair balls in the stomach or intestines called trichobezoars that may result in abdominal pain, nausea, weakness, weight loss, gastrointestinal bleeding, and even death (Bouwer & Stein, 1998).

Research suggests that trichotillomania may involve two separate processes related to dysregulated habitual motor patterns and dysfunctional methods for responding to inner experiences (Woods, Wetterneck, & Flessner, 2006c). *Focused pulling* functions as an escape from unwanted inner experiences or as a means to acquire a short-term pleasurable sensation. *Automatic pulling* appears to occur outside of conscious awareness and often takes place when an individual is distracted or sedentary. Current research indicates that the vast majority of individuals with trichotillomania engage in both focused and automatic pulling to some degree (Flessner et al., 2008b). However, some evidence indicates that there could be important differences between the groups. For instance, those with high levels of automatic pulling experience less stress, depression, and disability than those with high levels of focused pulling (Flessner, Woods, Franklin, Cashin, & Keuthen, 2008c; Walther, Ricketts, Conelea, & Woods, 2010).

Prevalence

The prevalence of trichotillomania is not fully known due, in part, to a lack of a population-wide epidemiological study. Previously used diagnostic criteria restricted those who met the current criteria, but did not experience tension before pulling and a reduction of this tension after pulling. One study found that the use of these criteria resulted in a prevalence rate of 0.6% in college women, while the use of the current, less restrictive, DSM-5 criteria produced a prevalence rate of 3.4% (Christenson et al., 1991b). Although the lifetime prevalence is generally estimated at approximately one to two percent, studies have found rates that range from under one percent to as high as 13% (Grant & Chamberlain, 2016; King et al., 1995; Odlaug & Grant, 2010; Siddiqui, Naeem, Naqvi, & Ahmed, 2012).

Cultural and Racial Considerations

Trichotillomania is less understood, recognized, and studied than many psychological disorders (Woods et al., 2006b). This paucity of information is magnified in racial/ethnic minority populations where little research has examined the cultural impact of trichotillomania and considerations that should guide treatment (Hall, 2001). Additionally, there are currently no data on potential differences in prevalence across cultural groups. However, some work has been done that provides information of how race/ethnicity might impact those with trichotillomania and its treatment.

For example, two studies surveyed college students to assess for differences in hair pulling behavior between ethnic groups. The first included 635 participants of which 70 percent were White, 28 percent were Black, and the remaining 2 percent were from a variety of other ethnic groups (McCarley, Spirrison, & Ceminsky, 2002). Overall, 10.2

percent of the participants reported hair pulling that resulted in notable hair loss, with Black women reporting the highest rate (15.7%). Moreover, Black women reported pulling due to itchy or inflamed skin significantly more than non-Black participants. The authors posit that this is likely attributable to hair care procedures that include harsh heat and chemicals that are commonly utilized by women with coarse hair. The second study attempted to replicate these findings in a sample of 322 college students which were 65% White, 30% Black, and 4% from a variety of other ethnic groups (Dubose & Spirrison, 2006). Consistent with the McCarley et al.'s findings, 9.3% of the participants reported hair pulling resulting in notable hair loss; however, unlike the previous study, no significant differences in hair pulling behavior was found between ethnic groups.

A larger online study recruited 1,393 participants (93% White, 4% Black, 4% Hispanic/Latino) who met self-reported criteria for trichotillomania. Minority participants were significantly less likely to pull from eye lashes and eye brows and to report tension before pulling than White participants. Moreover, ethnic minority participants reported higher levels of interference from trichotillomania with regard to home management, while White participants reported higher interference with academic life. Additionally, ethnic minority participants reported significantly less stress resulting from their trichotillomania symptoms than White participants. Finally, ethnic minority participants were less likely than White participants to utilize treatment for trichotillomania; however, no significant differences were found in the effectiveness of treatment once utilized (Neal-Barnett et al., 2010). This finding should be considered with care, as little is currently understood about cultural factors that could potentially be important in the treatment of trichotillomania. Some work has been performed examining racial identity

and culture and potential correlates with trichotillomania and related symptoms (Neal-Barnett et al., 2010; Neal-Barnett & Stadulis, 2006), but much work is needed to fully understand the role of these factors with regard to trichotillomania.

Additionally, it is known that members of specific ethnic groups, notably, Black and Latina/o, often place emphasis and importance on the appearance of hair (Neal & Wilson, 1989; Neal-Barnett, Ward-Brown, Mitchell, & Krownapple, 2000; Neal - Barnett, Statom, & Stadulis, 2011). Moreover, physical properties of hair often differ across racial groups, which may affect the frequency of hair pulling behavior as well as the areas in which one pulls (Neal-Barnett et al., 2000). Furthermore, researchers have speculated that cultural messages that individuals receive about their hair could influence hair pulling behaviors and may affect research findings (Neal-Barnett et al., 2010). The variable functions that hair plays in different cultures could play a role in the development and maintenance of trichotillomania and might be an important consideration when treating the disorder.

Sex Distribution

The sex distribution of trichotillomania is also not well understood. Lifetime prevalence rates have shown that trichotillomania is likely distributed equally among men and women (Christenson et al., 1991b). However, women are overrepresented in clinical trials. For example, a review of clinic trials for trichotillomania found that on average, women made up 89% of the participants (Chamberlain, Menzies, Sahakian, & Fineberg, 2007). It appears that women seek treatment for trichotillomania more often than men. Some have speculated that this is due in part because hair loss is unable to simply be blamed by male pattern baldness, less easily hidden by shaving, and is often more

stigmatizing for women than for men (Chamberlain, Odlaug, Boulougouris, Fineberg, & Grant, 2009; Christenson, Mackenzie, & Mitchell, 1991a, 1994; Penzel, 2003).

Treatment

Various methods have been used to treat trichotillomania, although the limited literature base precludes any formal, standardized treatment modality. Pharmacotherapy is the most common type of treatment for trichotillomania despite limited research and mixed clinical outcomes (Woods et al., 2006a). One study found a tricyclic antidepressant (clomipramine) to outperform another tricyclic antidepressant (desipramine) and placebo in a randomized controlled trial (RCT; Swedo et al., 1989). Another found positive effects for an antipsychotic (olanzapine) compared to placebo (Van Ameringen, Mancini, Patterson, Bennett, & Oakman, 2010). Nevertheless, the majority of pharmacological studies have failed to find benefits of medication over placebo (Bloch, Panza, Grant, Pittenger, & Leckman, 2013; Grant, Odlaug, Schreiber, & Kim, 2014; Mitchell & Callies, 1991; Streichenwein & Thornby, 1995). Moreover, two RCTs found behavior therapy to be superior to medication (Ninan, Rothbaum, Marsteller, Knight, & Eccard, 2000; van Minnen, Hoogduin, Keijsers, Hellenbrand, & Hendriks, 2003); however, it appears that in some cases medication combined with habit reversal training produce better outcomes than either treatment alone (Dougherty, Loh, Jenike, & Keuthen, 2006). Currently, behavior therapy, particularly habit reversal training, appears to be the most supported first-line treatment for trichotillomania (Bloch et al., 2007).

Habit reversal training. Habit reversal training is a behavioral procedure originally developed for the treatment of nervous habits and tics (Azrin & Nunn, 1973). It has since been utilized in the treatment of various problematic behaviors including,

trichotillomania, skin picking, tics, stuttering, thumb sucking, and other oral habits (Twohig, Bluett, Morrison, & Woidneck, 2014). Azrin and Nunn's original treatment package consisted of multiple components that have since been modified and simplified. Most current habit reversal training protocols include three primary components: awareness training, competing response training, and social support. Awareness training assists in understanding the contexts in which pulling is most likely to occur. This awareness of when or where the behavior may occur enables opportunities to employ learned therapeutic techniques in these situations. Competing response training consists of substituting another behavior in the place of pulling when an urge to pull occurs or the pulling is about to habitually occur. The competing response is often incompatible with the pulling (e.g., making a fist), although multiple studies have shown that this is not required in order to be effective (e.g., clenching knees; Sharenow, Fuqua, & Miltenberger, 1989; Woods et al., 1999). Finally, social support involves family members assisting in maintaining the treatment program through the utilization of positive reinforcement, encouragement, and reminders to use competing responses in triggering situations.

Habit reversal training is the most extensively researched behavioral treatment for trichotillomania and other tic-related disorders. Over 30 controlled trials have been performed that examined habit reversal training for multiple disorders with both children and adults (Twohig, Bluett, Morrison, & Woidneck, 2014). Moreover, a recent meta-analysis of 18 studies found habit reversal training to be effective at treating a wide range of disorders across varied samples (Bate, Malouff, Thorsteinsson, & Bhullar, 2011).

Although habit reversal training is relatively effective across a breadth of disorders, it fails to target internal states associated with focused pulling in trichotillomania. This has lead researchers to modify habit reversal training in attempts to better target issues such as anxiety, distress, and lack of motivation that are often present in trichotillomania. This modification began nearly two decades ago through the use of cognitive behavior therapy (CBT) to supplement traditional habit reversal training techniques (Lerner, Franklin, Meadows, Hembree, & Foa, 1999; Rangaswami, 1997). Two RCTs have since shown CBT and habit reversal training to be a promising treatment for trichotillomania (Ninan et al., 2000; van Minnen et al., 2003); however, modern forms of CBT have more recently been utilized that emphasize acceptance of distressing internal experiences and valued living that may better account for problematic distress and lack of motivation often seen in the disorder. These modern CBT approaches include dialectical behavior therapy (DBT; Keuthen et al., 2010b), metacognitive therapy (Shareh, 2017), and acceptance and commitment therapy (ACT; Twohig & Woods, 2004). Evidence for DBT as a treatment for trichotillomania is still preliminary, having been examined in two case studies (Keuthen & Sprich, 2012; Welch & Kim, 2012), one pilot study (Keuthen et al., 2010b) and one small RCT (Keuthen et al., 2010a). Similarly, the evidence for metacognitive therapy for trichotillomania is limited, having been examined in a single RCT (Shareh, 2017). While still limited, the research on ACT as a treatment for trichotillomania is relatively more robust at this time, as subsequently described.

Acceptance and Commitment Therapy. ACT is a modern cognitive behavior therapy that targets six specific processes in an attempt to promote psychological

flexibility, which is the ability to engage in meaningful behaviors without particular regard for any inner experience (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Psychological flexibility is fostered by targeting core ACT processes of change: (a) acceptance: willingness to experience inner experiences without making attempts to control or change them; (b) defusion: recognizing inner experiences as simply inner experiences without added evaluations; (c) contact with the present moment: recognizing inner experiences as they are occurring without ruminating or worrying about the past or future; (d) self as context: not defining oneself as one's inner experience and experiencing oneself as the context in which transient inner experiences occur; (e) values: chosen, important areas of one's life that motivate and direct behavior; (f) committed action: movement that is consistent with one's chosen values.

At this time, the use of ACT for trichotillomania and related disorders has mostly consisted of the use of ACT to augment traditional behavior therapies such as habit reversal training. However, a few studies have examined the efficacy of ACT alone for treating disorders commonly thought to be similar to trichotillomania. The first was a small study of five participants with chronic skin picking using a multiple-baseline across participants design (Twohig, Hayes, & Masuda, 2006). Four of the five participants responded very well to treatment, reaching levels of no, or very limited skin picking at post-treatment; however, only one of the participants maintained these results at a three-month follow-up. The next study used a similar protocol that examined outcomes in six participants with problematic internet pornography viewing (Twohig & Crosby, 2010b). All of the participants saw pronounced decreases in time spent viewing Internet pornography (85% reduction on average). These results were maintained for each

participant at a 3-month follow-up. Moreover, each participant saw increases in psychological flexibility and quality of life. A final study replicated previous findings utilizing ACT to treat five participants with trichotillomania (Crosby, Dehlin, Mitchell, & Twohig, 2012). In this study, ACT was employed at the beginning of treatment and habit reversal techniques were incorporated toward the end of treatment. Each of the five participants saw significant reductions in hair pulling before habit reversal was introduced, and four maintained at least half of their treatment gains at a three-month follow-up. These studies indicate that ACT alone can be a useful treatment for obsessive compulsive related disorders, including trichotillomania, but also lends credence to habit reversal as a supplement to ACT. Moreover, habit reversal techniques combined with ACT might lead to more effective treatment outcomes than either therapy alone.

ACT-enhanced Behavior Therapy. Trichotillomania often involves both automatic and focused pulling and it has been suggested that the pulling is maintained by two separate processes (Woods et al., 2006c). Because of this, recent treatment approaches have targeted both processes in an attempt to improve treatment outcomes. ACT-enhanced Behavior Therapy was developed to target overt, automatic pulling through the use of behavioral techniques like habit reversal training and covert, internal experiences that lead to focused pulling through the use of ACT (Woods & Twohig, 2008a). In theory, combining ACT with more traditional behavioral approaches provides a more comprehensive treatment that will lead to improved treatment outcomes.

While still lacking, research on the use of ACT to enhance traditional behavior therapy techniques (i.e., habit reversal training and stimulus control) has been more thorough than simply ACT alone. An initial pilot study examined the use of an ACT-

enhanced behavior therapy protocol on six adults with trichotillomania utilizing a multiple-baseline across participants design (Twohig & Woods, 2004). Four of the six participants reduced their hair pulling behavior significantly and three were able to maintain their gains at a three-month follow-up. Next, a follow-up RCT was performed with a larger sample size of 25, that also found significant reductions in hair pulling (Woods et al., 2006c). Another study examined ACT-enhanced behavior therapy with regard to the sequence in which the two types of therapy (i.e., ACT and habit reversal training) are presented with five participants with trichotillomania or skin picking (Flessner, Busch, Heideman, & Woods, 2008a). The researchers found that participants responded best when both ACT and habit reversal training were utilized, but no differences were seen as a result of sequencing. Finally, a recent RCT including 85 participants compared an ACT-enhanced behavior therapy protocol to psychoeducation and supportive therapy and found that the ACT condition significantly outperformed the psychoeducation and supportive therapy condition (Woods et al., 2013).

Other studies expanded the scope of the ACT-enhanced behavior therapy protocol by treating individuals with Tourette syndrome (Franklin, Best, Wilson, Loew, & Compton, 2011) as well as adolescents with trichotillomania (Fine et al., 2012). Both studies saw similar positive results as previous studies when treating these populations. Finally, a recent case-series study saw marked decreases in picking behavior and related psychosocial impairment in three of four individuals with skin picking using a similar ACT-enhanced behavior therapy protocol (Capriotti, Ely, Snorrason, & Woods, 2015). In summary, the support for ACT-enhanced behavior therapy is strong.

Telepsychology

Telehealth refers to the utilization of technology to improve the delivery of, and access to, health care services (Sood et al., 2007). This can be achieved through the employment of video communication technology, telephone, text messaging, web-based interventions, or self-help. Telepsychology refers to a type of telehealth that consists of the delivery of traditional psychological services by way of technology assisted means (Nelson, Bui, & Velasquez, 2011).

Telepsychology services have many advantages over traditional, in-person psychotherapy. Reduced travel times as well as transportation expenses provide cost saving for both the therapist and client. Moreover, telepsychology might afford those with debilitating levels of anxiety, depression, or shame, who might not be willing to attend a traditional therapy session, to receive treatment from the safety and convenience of their own homes (Hedman et al., 2011; Maheu, Pulier, McMenamin, & Posen, 2012b).

Perhaps the most important advantage telepsychology has over traditional services, is its ability to allow therapists to provide services to underserved areas and populations. These include rural areas where there are often shortages of mental health treatment providers as well as urban or suburban areas where more providers might be found, but access to quality care for less understood conditions such as trichotillomania might still be difficult to obtain. Telepsychology has been shown to be beneficial in numerous settings that are often underserved including rural areas (Harley, 2006; Savin, Garry, Zuccaro, & Novins, 2006; Trott & Blignault, 1998), nursing homes (Rabinowitz et al., 2010), corrections facilities (Leonard, 2004; Zaylor, Whitten, & Kingsley, 2000), and remote military locations (Grady & Melcer, 2005). Additionally, research on

telepsychology has provided preliminary evidence of its efficacy using a variety of evidence-based treatment approaches to treat a wide range of mental health disorders (Gros et al., 2013). Although research related to the relative efficacy of treatment by means of telepsychology compared to traditional face-to-face therapy is still preliminary the current data have found telepsychology to be roughly equivalent to traditional in-person treatment.

Alongside these advantages, telepsychology presents unique challenges not present in traditional face-to-face therapy (Barnett & Scheetz, 2003; Maheu, Pulier, McMenamin, & Posen, 2012a; Ragusea & VandeCreek, 2003). First, technology and communication through non-traditional means can be uncomfortable for some. Clients might need education about the use of technology and may take time to become comfortable speaking to a therapist over the Internet. Therefore, rapport building might require more time and effort in these situations and should be accounted for. Second, confidentiality must now be maintained by both the therapist and the client when providing telepsychotherapy. It is important for the therapist to make efforts to assist clients in finding safe, private locations when participating in therapy. Moreover, the therapist is responsible to utilize technology that is secure and encrypted to assist in the protection of confidentiality. Finally, emergency and crisis situations must be prepared for and handled differently when utilizing telepsychology. These differences should be discussed with clients and arrangements should be made by the therapist to be prepared for emergencies. For example, the therapist should be aware of the client's local community resources, such as police, hospitals, and family support and have contact information for these resources readily available. Despite these challenges,

telepsychology appears to be a promising and beneficial resource that can enable greater access to quality psychological care to those who would otherwise seek treatment at great cost or forgo treatment altogether.

At this time, no research has examined treatment of trichotillomania using telepsychology. However, two studies have examined the utility of habit reversal training and telepsychology. The first, a pilot study, examined telepsychology delivered habit reversal training in children with Tourette syndrome (Himle et al., 2010). The study employed a multiple-baseline across participants design with three participants. Results were very similar to traditional, face-to-face habit reversal training trials with all participants demonstrating significant tic reduction at post-treatment. Additionally, despite the use of telepsychology, participants and parents rated the treatment as acceptable and the therapeutic relationship as strong. The second study used telepsychology and a treatment known as Comprehensive Behavioral Intervention for Tics, which included habit reversal training as well as other behavioral techniques (Himle et al., 2012). Twenty participants were randomly assigned to telepsychology or face-to-face treatment groups. Both groups demonstrated significant results with no differences between groups. Moreover, no differences were found on ratings of treatment acceptability or therapist-client alliance. These studies provide some preliminary evidence that habit reversal training can be successfully delivered by way of telepsychology without sacrificing participant acceptability of treatment or the therapeutic relationship.

Conclusion

A current review of the literature on the treatment of trichotillomania reveals that the disorder, while relatively prevalent and disruptive, continues to be misunderstood. Moreover, the scant availability of informed, quality treatment providers often leads to improper treatment or no treatment at all. However, the treatment of trichotillomania has progressed and improved over the past few decades, with modern approaches better accounting for and targeting both the behavioral and cognitive components of the disorder. Specifically, ACT-enhanced behavior therapy is an evidence-based approach that has been shown to effectively treat trichotillomania. While treatment for trichotillomania has improved, access to providers who are familiar with trichotillomania and its treatment has not. Telepsychology appears to be a promising component to the solution of this problem as multiple studies have shown this to be an effective way to deliver treatment across a variety of psychological and medical conditions. Furthermore, habit reversal training has been shown to work effectively when delivered by means of telepsychology, providing evidence that a modern approach to treatment that builds on this foundation could effectively be delivered in this manner. The current study is an attempt to examine the feasibility of delivering ACT-enhanced behavior therapy by way of telepsychology through the use of a randomized controlled trial.

CHAPTER III

METHOD

Participants

Participants were recruited from university campuses, mental health providers throughout Utah, and via advertising on the internet. To be included in the study, participants were required to: (a) meet the DSM-5 criteria for trichotillomania; (b) be seeking treatment primarily for trichotillomania-related concerns; (c) be at least 18 years old; (d) reside in Utah; and (e) be a fluent English speaker. Participants were excluded from the study if they: (a) were currently receiving psychotherapy; (b) had started or changed psychotropic medication in the past 30 days; or (c) were planning to start or change psychotropic medication during the course of the current study.

The majority of participants were women (86.4%), heterosexual (81.8%), and White (95.5%). On average, participants were 32.5 ($SD = 8.3$) years old. Half of the participants reported having been previously diagnosed with at least one psychological disorder. Of those, three reported two previous diagnoses. The results of the diagnostic interview indicated that seven (31.8%) participants met criteria for a comorbid psychological disorder. Six of these met criteria for a single comorbid diagnosis and one met criteria for four comorbid diagnoses. See Table 1 for additional participant characteristics.

Table 1
Participant Characteristics

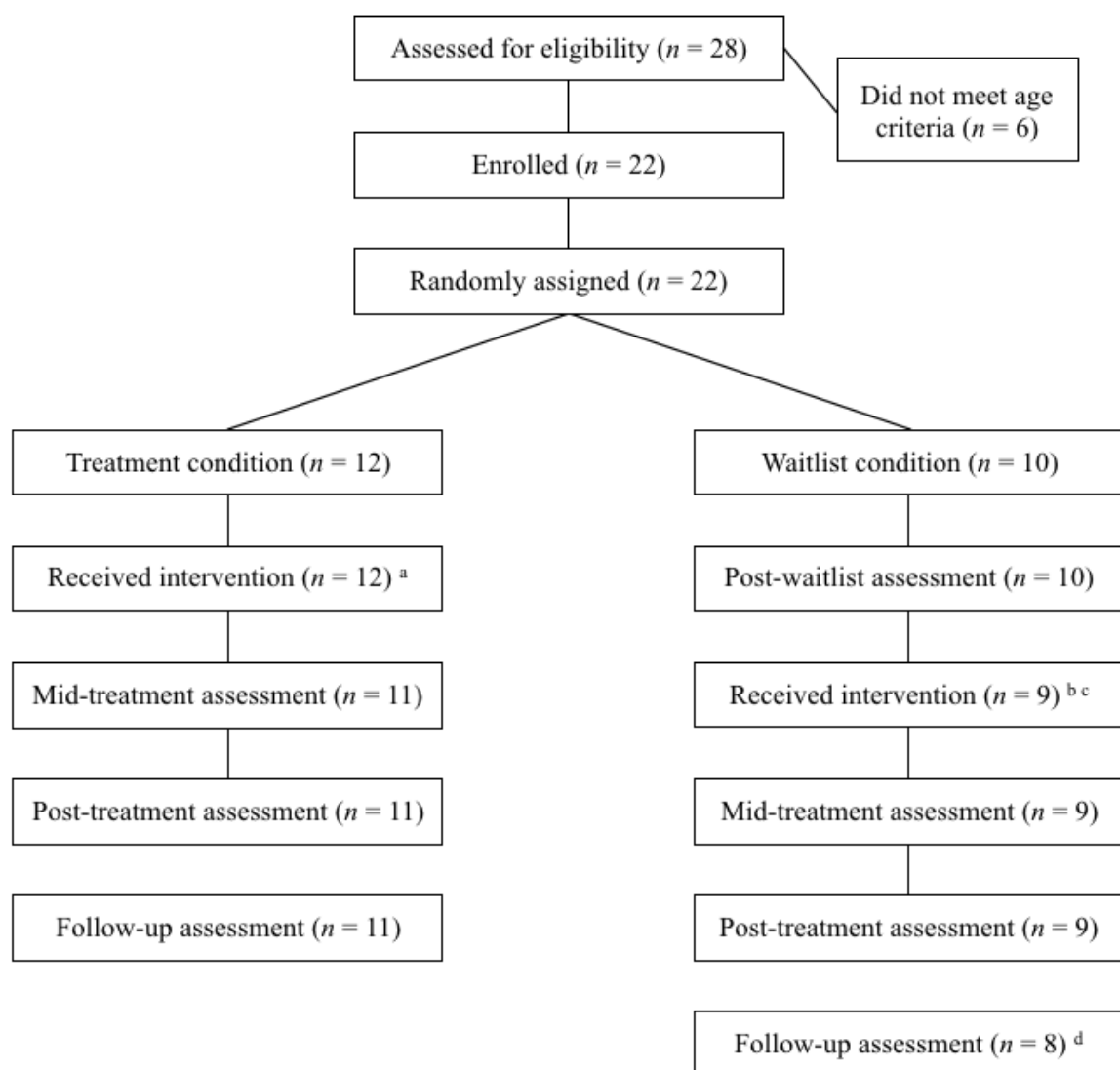
| Variable | <i>N</i> / <i>Mean</i> | % / <i>SD</i> |
|--|------------------------|-----------------|
| Age | <i>M</i> = 32.5 | <i>SD</i> = 8.3 |
| Sex | | |
| Male | 3 | 13.6 |
| Female | 19 | 86.4 |
| Sexual orientation | | |
| Heterosexual | 18 | 81.8 |
| Gay or lesbian | 2 | 9.1 |
| Bisexual | 1 | 4.5 |
| Other | 1 | 4.5 |
| Race/ethnicity | | |
| White | 21 | 95.5 |
| Asian | 1 | 4.5 |
| Hispanic or Latinx | 1 | 4.5 |
| Education (highest level completed) | | |
| High school | 3 | 13.6 |
| Some college | 7 | 31.8 |
| Bachelor's degree | 6 | 27.3 |
| Graduate degree | 6 | 27.3 |
| Marital status | | |
| Single | 6 | 27.3 |
| Married | 13 | 59.1 |
| Divorced | 2 | 9.1 |
| Remarried | 1 | 4.5 |
| Monthly income | | |
| \$1,000 to \$1,999 | 3 | 13.6 |
| \$2,000 to \$2,999 | 6 | 27.3 |
| \$3,000 to \$3,999 | 3 | 13.6 |
| \$4,000 to \$4,999 | 1 | 4.5 |
| \$5,000 to \$5,999 | 1 | 4.5 |
| \$6,000 to \$6,999 | 1 | 4.5 |
| \$7,000 to \$7,999 | 2 | 9.1 |
| \$9,000 to \$9,999 | 2 | 9.1 |
| More than \$10,000 | 3 | 13.6 |
| Years that hair pulling has been a problem | <i>M</i> = 16.3 | <i>SD</i> = 9.7 |
| Previous treatments for trichotillomania | | |
| Individual therapy | 11 | 50.0 |
| Self -help | 2 | 9.1 |
| Previous diagnosis (self-report) | | |
| Depression | 7 | 31.8 |
| Generalized anxiety | 4 | 18.2 |

Table 1
Participant Characteristics

| Variable | <i>N / Mean</i> | <i>% / SD</i> |
|----------------------------------|-----------------|---------------|
| Obsessive-compulsive disorder | 3 | 13.6 |
| Attention deficit/hyperactivity | 2 | 9.1 |
| Post-traumatic stress disorder | 2 | 9.1 |
| Panic disorder | 1 | 4.5 |
| Bipolar | 1 | 4.5 |
| Excoriation disorder | 1 | 4.5 |
| Comorbid diagnosis (MINI) | | |
| Persistent depressive disorder | 4 | 18.2 |
| Generalized anxiety disorder | 3 | 13.6 |
| Major depressive disorder | 2 | 9.1 |
| Panic disorder | 1 | 4.5 |
| Obsessive-compulsive disorder | 1 | 4.5 |
| Post-traumatic stress disorder | 1 | 4.5 |
| Current psychotropic medications | | |
| Antidepressants | 6 | 27.3 |
| Stimulant | 1 | 4.5 |

Note. MINI = The Miniature International Neuropsychiatric Interview.

A power analysis was conducted using G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007) in order to determine the number of participants to include in the study. A past trial of ACT-enhanced behavior therapy for trichotillomania resulted in a large effect size ($d = .81$; Woods et al., 2006c). Therefore, a power analysis was performed using this same effect size, with alpha set at .05 and power at .80 specifying a sample of 24. At the conclusion of the recruitment period, 28 individuals were assessed for eligibility and 22 met requirements and participated in the study. See Figure 1 for a participant flowchart.



^a One participant dropped out of the intervention following session 5 with no explanation. This participant did not respond to contact attempts and did not complete the mid- and post-treatment and follow-up assessments. ^b One participant did not respond to contact attempts following completion of the post-waitlist assessment. ^c Two participants dropped out of the intervention following sessions 7 and 8. Both stated a lack of time to continue participation in the intervention. The first due to an injury in the family that needed to be cared for. The second due to starting a new job. Both completed the post-treatment assessment. ^d One participant did not respond to contact attempts to complete the follow-up assessment.

Figure 1. Participant Flowchart

Design

The effect of treatment was assessed through a randomized controlled trial. Participants were randomized into either a treatment or waitlist control group. An online random number generator was used to create a list of 30 participant identifiers that were randomly assigned to one of two equally sized groups. Following the intake session, participants were given the next available identifier and assigned to the corresponding group. A waitlist control group offers the benefit of each participant receiving the active treatment while still maintaining a notable degree of experimental control. Participants placed in the treatment group completed a pretreatment assessment, tracked their baseline hair pulling for one week, and then began the 12-week treatment. Participants in the waitlist group completed the same pretreatment assessment, tracked their baseline hair pulling for one week, and then began treatment after 12 weeks had elapsed and they had completed a post-waitlist assessment. All participants were also given an assessment following their fifth treatment session. Additional follow-up assessments were given to both groups 12 weeks following treatment. See Table 2 for a visual representation of the treatment design.

Table 2.
Assessment Schedule

| | Week 1 | Week 5 | Week 12 | Week 17 | Week 24 | Week 36 |
|-----------|---------------|---------------|----------------|---------------|----------------|-----------|
| Treatment | Pre-treatment | Mid-treatment | Post-treatment | - | Follow-up | - |
| Waitlist | Pre-treatment | - | Post-waitlist | Mid-treatment | Post-treatment | Follow-up |

Procedures

Participants were recruited from a number of physical and online locations. Online recruitment consisted of a listing on the Trichotillomania Learning Center (TLC) “Find a Treatment Provider” page. Fliers were placed on multiple university campuses and were emailed to university mental health providers throughout Utah (see **Appendix A**). Participants responded to the recruitment flyers by phone or email. An initial screening (see Appendix B) by telephone assessed for general trichotillomania symptomology and gave the participant an opportunity to inquire about the study. If the participant appeared to meet the study criteria and showed interest in the study, an intake session was scheduled. Additionally, instructions on how to set up their computer to allow for telepsychology services were emailed to the participant at this time. Support by phone was also available.

Intake sessions took place over the internet using video conferencing software. The session took approximately one hour and consisted of receiving informed consent (see Appendix C), gathering an electronic signature, and conducting a semi-structured interview that assisted in assessing for eligibility in the study. To better determine eligibility, each participant also completed a pretreatment assessment battery (see Appendix D) consisting of: (a) background information; (b) Massachusetts General Hospital Hair Pulling Scale (MGH-HPS); (c) Milwaukee Inventory for Subtypes of Trichotillomania-Adult Version (MIST-A); (d) Quality of Life Scale (QOLS); (e) Acceptance and Action Questionnaire for Trichotillomania (AAQ-TTM); (f) Valuing Questionnaire (VQ); and (g) Experience of Shame Scale (ESS). These assessments (save the background information) were again administered at post-waitlist (if applicable), mid-

treatment, post-treatment, and follow-up to assess the effect of treatment over time.

Additionally, the Working Alliance Inventory–Short Revised (WAI-SR) was given at mid-treatment, post-treatment, and follow-up and the Client Satisfaction Questionnaire–8 (CSQ-8) was given at post-treatment and follow-up to assess for client-therapist alliance and treatment satisfaction.

Telepsychology Procedures

All treatment sessions, including intake, utilized telepsychology procedures. The use of HIPAA approved video conferencing software (i.e., VSee) allowed for the treatment of individuals across the state of Utah who may not have had access to quality help for trichotillomania. The video conferencing software allowed the therapist and client to see and hear one another throughout each session. The use of telepsychology comes with unique risks to confidentiality compared to more traditional psychotherapy. For example, clients hold some responsibility for maintaining their confidentiality and must ensure that they are in a private location during sessions. Additionally, because no therapist communication is face-to-face, it is important to inform clients of security risks of phone, email, and video communication. These risks were reviewed with each participant at the beginning of the intake session and throughout treatment as necessary. Therapists were located in a private, secure location in the Center for Clinical Research at Utah State University. All recorded sessions were saved to a HIPAA compliant server using Box. All assessments were completed using online survey software (i.e., Qualtrics). Furthermore, all participants completed short daily check-ins that briefly assessed hair pulling, urges, type of hair pulling, level of willingness to have urges, and level of valued

action. These assessments were completed on either the participant's smartphone or computer using a secure online data collection tool (i.e., MetricWire and LifeData).

Treatment

Treatment consisted of a 10-session protocol (see Appendix E) that took place over 10 individual weekly one-hour sessions. Of the participants who completed all 10 sessions, the average treatment length was 12.7 weeks; flexibility allowed the treatment provider to accommodate for scheduling conflicts or other participant needs. The protocol closely followed an empirically supported ACT-Enhanced Behavior Therapy treatment manual (Woods & Twohig, 2008b). The manual blends traditional behavior therapy techniques such as habit reversal training and stimulus control with more contemporary behavior therapy elements from ACT that employ techniques to change the function of the urges to pull as well as the associated cognitions.

Measures

Diagnostic Assessments and Clinical Tools

The following tools were used to gather basic demographic and clinically relevant information and to monitor hair pulling behavior over the course of treatment.

Background information. This assessment gathered basic information from the participant such as, sex, age, race, ethnic identity, marital status, and education. Additionally, it assessed factors related to trichotillomania and mental health such as, how long participants had been pulling their hair, previous psychological treatment, other mental health diagnoses, and use of psychotropic medication.

The Miniature International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). The MINI is a short, structured diagnostic interview assessing for Axis I symptoms as outlined by the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition (DSM-IV; American Psychiatric Association, 2000). It has been validated in numerous studies and is considered to be a more time-efficient alternative to longer structured measures (Sheehan et al., 1998). It was used in the current study to ensure participant eligibility by screening for comorbid disorders that might be of greater concern than trichotillomania.

The Milwaukee Inventory for Subtypes of Trichotillomania-Adult Version (MIST-A; Flessner et al., 2008c). The MIST-A is a 15-item self-report measure consisting of two subscales that assesses for the type of hair pulling. Individual items are rated on a nine-point Likert-type scale (1 = *Not true for any of my hair-pulling* to 9 = *True for all of my hair-pulling*). The Focused Pulling Scale consists of 10 items that assess symptoms related to focused hair pulling (e.g., “I intentionally start to pull my hair”). The scale items are summed and scores range from 10 – 90 with higher scores indicating more focused hair pulling. The Automatic Pulling Scale consists of 5 items that assess symptoms related to automatic pulling (e.g., “I don’t notice that I have pulled my hair until after it’s happened”). The scale items are summed and scores range from 5 to 45 with higher scores indicating more automatic pulling. Based on a normative sample, the mean score of the Focused Pulling Scale was 45.5, $SD = 16.2$ while the Automatic Pulling Scale was 25.7, $SD = 9.04$ (Flessner, Woods, Franklin, Cashin, & Keuthen, 2008). Both subscales of the MIST-A have demonstrated adequate internal consistency (focused $\alpha = .77$, automatic $\alpha = .73$) and good convergent and divergent validity (Flessner

et al., 2008c). The MIST demonstrated acceptable internal consistency in the current study (Automatic $\alpha = .74$; Focused $\alpha = .78$).

Daily assessment. Participants were asked to fill out basic self-monitoring questions each day, these included: (a) How many hairs did you pull today?; (b) How many minutes did you spend pulling today?; (c) How many urges to pull did you experience today?; (d) How strong were the urges to pull today? (on average); (e) How much of your pulling today was automatic or focused?; (f) Rate your level of willingness today (on average); (g) How successful were you today at engaging in actions that are in line with your values? (on average). These data were collected using secure online data collection tools (i.e., MetricWire and LifeData). Participants were prompted to check in daily to record their data. The participants and therapist monitored and discussed the participant's progress using a summary spreadsheet during each therapy session. Additionally, these data collection tools were used for homework between sessions. For example, participants were asked to complete urge monitoring assessments following urges to pull. The participant would use these tools to answer questions related to the urge they had just experienced (e.g., "what thoughts, emotions, or sensations did you notice?" or "Did you use any control strategies in an attempt to reduce or remove the urge?").

Primary Outcome Measures

The following assessments were used to measure primary dependent variables of interest at each time point.

Massachusetts General Hospital Hair Pulling Scale (MGH-HPS; Keuthen, O'Sullivan, Ricciardi, & Shera, 1995a). The MGH-HPS is a seven-item self-report

measure that assesses urges to pull hair, actual pulling behavior, and the distress caused from pulling. Individual items are rated from 0 to 4 and are then summed into a 0 to 28 point total score, with higher scores indicating a higher degree of hair pulling severity. Score reductions of seven points or more are considered to be indicative of clinically significant treatment response and disorder remission (Houghton et al., 2015). The MGH-HPS displays good internal consistency ($\alpha = .89$; Keuthen et al., 1995a), test-retest reliability ($r = .97$), and convergent and divergent validity (O'Sullivan et al., 1995). The MGH-HPS demonstrated acceptable internal consistency in the current sample ($\alpha = .75$).

Quality of Life Scale (QOLS; Burckhardt, Woods, Schultz, & Ziebarth, 1989).

The QOLS is a 16-item self-report scale that measures several aspects of functional status including, relationships, employment, health, and recreation. Items are rated on a seven-point Likert-type scale that asks how satisfied the respondent is in these areas (1 = *terrible* to 7 = *delighted*). Scores are then summed into a 16 to 112 point total score, with higher scores indicating greater quality of life. The average total score for healthy populations is approximately 90 (Burckhardt & Anderson, 2003). Score increases of seven to eight points generally indicate clinically significant improvement (Burckhardt & Anderson, 2003). The QOLS has demonstrated good internal consistency ($\alpha = .82$ to $.92$) and test-retest reliability ($r = .78$ to $.84$; Burckhardt & Anderson, 2003), as well as good convergent and divergent validity (Burckhardt, Anderson, Archenholtz, & Hägg, 2003). The QOLS demonstrated good internal consistency in the current sample ($\alpha = .86$).

Secondary Process of Change Measures

The following assessments were used to measure potential changes in processes hypothesized to be related to treatment outcome at each time point.

Acceptance and Action Questionnaire for Trichotillomania (AAQ-TTM; Houghton et al., 2014). The AAQ-TTM is a nine-item self-report measure of psychological inflexibility, specifically designed for trichotillomania populations. The measure consists of two factors: interference, which relates to the relationship between general functioning and urges to pull, and control, which relates to the management of and attitudes toward urges to pull. Items are rated on a seven-point Likert-type scale (1 = *never true* to 7 = *always true*) that are then summed into a 7 to 63 point total score, with higher scores indicating greater levels of psychological inflexibility. Higher levels of psychological inflexibility have been shown to be related to a wide variety of conditions, including, depression, anxiety, and overall psychological distress. The AAQ-TTM has demonstrated good internal consistency ($\alpha = .84$; Houghton et al., 2014). It also demonstrated good convergent and divergent validity as well as incremental validity over the Acceptance and Action Questionnaire-II (Bond et al., 2011) from which it is based. The AAQ-TTM demonstrated questionable internal consistency in the current sample ($\alpha = .64$); it is worth noting this improved to .85 at posttreatment.

Experience of Shame Scale (ESS; Andrews, Qian, & Valentine, 2002). The ESS is a 25-item measure of shame. It consists of three subscales: (a) characterological shame (i.e., personal habits, manner with others, personal ability); (b) behavioral shame (i.e., doing something wrong, saying something stupid, failure in competitive situations); and (c) bodily shame (i.e., feeling ashamed of any part of your body). Past and current experiences, cognitions, and behaviors related to shame are measured on a four-point Likert-type scale (1 = *Not at all* to 4 = *Very much*) that are then summed into a 25 to 100 point total score. The original validation study that included 163 undergraduate university

students found mean scores of 55.58 (13.95), 24.43 (7.25), 21.25 (5.5), and 9.82 (3.40) for the total, characterological, behavioral, and bodily scales, respectively. The ESS has demonstrated excellent internal consistency ($\alpha = .92$) and test retest reliability ($r = .83$) as well as convergent and divergent validity (Andrews et al., 2002). The ESS demonstrated excellent internal consistency in the current sample ($\alpha = .95$).

Valuing Questionnaire (VQ; Smout, Davies, Burns, & Christie, 2014). The VQ is a 10-item self-report measure of engagement in valued living. It consists of two factors: progress, which measures awareness and engagement with what is personally important, and obstruction, which measures disruptions in valued living due to avoidance or distraction. Items are rated on a seven-point Likert-type scale (0 = *Not at all true* to 6 = *Completely true*) which are then summed into progress and obstruction total scores (five items each). Due to an error in the development of the assessment battery, item 5 (“I made progress in the areas of my life I care most about”) was not included in the current study. Thus, the progress subscale only includes four of the intended five items. The VQ has demonstrated good internal consistency ($\alpha = .87$) as well as convergent and divergent validity (Smout et al., 2014). The obstruction subscale demonstrated good internal consistency in the current sample ($\alpha = .84$) and the four-item progress subscale demonstrated acceptable internal consistency ($\alpha = .76$).

Treatment Acceptability Measures

The following assessments were used to measure client-rated therapeutic alliance at mid- and post-treatment and overall treatment satisfaction at mid- and post-treatment and follow-up.

Working Alliance Inventory – Short Revised (WAI-SR; Hatcher & Gillaspy, 2006). The WAI-SR is a 12-item self-report measure of perceived therapeutic alliance. The measure consists of three factors: (a) goal agreement, agreement between the therapist and client regarding the goals of treatment; (b) task agreement, agreement on how to achieve these goals; (c) and bond, the relationship and alliance between the therapist and client. Items are rated on a five-point Likert-type scale (1 = *seldom* to 5 = *always*) that are then averaged into a 1 to 5 point total score, with higher scores indicating greater levels of therapeutic alliance. The WAI-SR has demonstrated good test-retest reliability ($r = .85-.93$) and convergent and divergent validity (Hatcher & Gillaspy, 2006). The WAI-SR demonstrated excellent internal consistency in the current sample ($\alpha = .98$).

Client Satisfaction Questionnaire–8 (CSQ-8; Attkisson & Zwick, 1982). The CSQ-8 is an eight-item version of the original Client Satisfaction Questionnaire (Larsen, Attkisson, Hargreaves, & Nguyen, 1979). It is a single factor self-report measure of client satisfaction of treatment. Items are rated on a four-point Likert-type scale where 1 indicates a low degree of satisfaction and 4 indicates high satisfaction. Scores are summed into an 8 to 32 point total score with high scores indicating greater levels of treatment satisfaction. The CSQ-8 has demonstrated good internal consistency ($\alpha = .84-.93$) as well as convergent and divergent validity. The CSQ-8 demonstrated excellent internal consistency in the current sample ($\alpha = .98$).

Data Analytic Strategy

Data was collected using online survey software (i.e., Qualtrics). All participants received a research identification number, which was used to collect anonymous data

online. All collected data was analyzed using R statistical software (R Development Core Team, 2016) and the following packages: car (Fox & Weisberg, 2011), lme4 (Bates, Maechler, Bolker, & Walker, 2015), psy (Falissard, 2012), psych (Revelle, 2017), tidyverse (Wickham, 2017), and jmv (Selker, Love, & Dropmann, 2017). An intent-to-treat approach was taken for all analyses such that all collected data were used, including dropouts.

Descriptive statistics, including demographic information and means for each of the measures at the various treatment stages were calculated for both the experimental and control groups. Comparisons were then made between the groups, using Welch's t-tests and Pearson's chi-squared tests to ensure that groups were similar at the beginning of the study with regard to demographic, dependent, and independent variables. Internal consistency of each of the identified measures was computed to establish scale reliability.

Primary Analysis

The primary outcomes of interest were the severity of trichotillomania symptoms (as measured by the MGH-HPS) and quality of life (as measured by the QOLS). ANCOVAs were used to assess the effect of the treatment condition on post-treatment trichotillomania symptom severity and quality of life after controlling for pre-treatment levels compared to the waitlist condition. Post-treatment scores were entered as a dependent variable, treatment condition was entered as an independent variable, and pre-treatment scores were entered as a covariate. Effect sizes are reported using ω^2 , as it produces less biased and more conservative effect sizes compared to η^2 , especially in small samples (Albers & Lakens, 2017). ω^2 can be interpreted using the same rough criteria as η^2 (i.e., small = 0.01, medium = 0.06, large = 0.14). Post hoc analyses were

performed with a Bonferroni adjustment. Because both conditions eventually received treatment, data from all participants was then combined. Mixed model repeated measures analyses were used to assess outcome across pre-treatment, mid-point, post-treatment, and three-month follow-up. This method allows all available data to be used to model change over time, while modeling any missing data. Participants were specified in the model as a random factor to control for interclass correlations and time was specified as a fixed factor. Using chi-square tests on the log-likelihood values, this model was compared to an intercept only model (excluding the time variable) and a model that allowed for slopes to vary by participant. The model-fit was significantly better than the intercept only model ($ps < .01$) and was not significantly improved by adding random slopes ($ps > .10$) for all variables. Therefore, the original random intercept, fixed slopes model was retained and utilized in all mixed model analyses.

Secondary Analysis

Similar analytic procedures were conducted using the AAQ-TTM, VQ, and ESS to determine differences between the experimental and control groups with regard to psychological flexibility, engagement in valued living, and levels of shame. As before, the data were combined and these measures were examined across pre-treatment, mid-point, post-treatment, and follow-up using mixed model repeated measures analyses. Finally, mean scores for the WAI-SR and CSQ-8 were examined to assess perceived alliance with therapist and satisfaction with treatment.

CHAPTER IV

RESULTS

Treatment Adherence

The author conducted the treatment for 15 participants. The remaining seven participants received treatment from a single graduate assistant therapist. Both therapists involved in the study were supervised by a licensed psychologist who co-authored the treatment manual that the study treatment protocol was based on. All sessions were video and audio recorded using the built-in recording function in VSee. Twenty percent of all sessions were viewed and scored for the quantity and quality of the coverage of each treatment component using a standardized treatment integrity scoring system used in previous ACT research (Crosby & Twohig, 2016; Twohig & Crosby, 2010a). Two sessions from each 10-session treatment were systematically chosen such that each session number was reviewed approximately five times. A graduate assistant reviewer who did not provide treatment scored each of the 48 selected sessions. This reviewer had received coding training for a previous project and scored reliably (above .90) with the author in the previous project. The reviewer also scored reliably with the author on five of the sessions from the current study that were conducted by the graduate assistant therapist.

For every coded session, HRT consistent (i.e., awareness training, competing response training, and contingency management), ACT consistent (i.e., acceptance, defusion, self as context, present moment awareness, values clarification, and committed action), and ACT inconsistent (i.e., cognitive challenging, experiential avoidant change

strategies, and thoughts and feelings cause action) behaviors were rated on a five-point Likert-type scale (1 = *the variable was never explicitly covered* to 5 = *the variable occurred with high frequency and was covered in a very in-depth manner*). Additionally, therapist adherence to the treatment model and therapist competency were rated on the same scale. The average score for each HRT process over the 10 sessions are as follows: awareness training ($M = 2.10$, $SD = 1.07$), competing response training ($M = 1.90$, $SD = 1.09$), and contingency management ($M = 1.76$, $SD = 1.30$). The average score for each ACT process are as follows: acceptance ($M = 2.98$, $SD = 1.25$), defusion ($M = 2.49$, $SD = 1.38$), contact with the present moment ($M = 1.98$, $SD = 1.08$), self as context ($M = 1.27$, $SD = 0.74$), values ($M = 1.95$, $SD = 1.22$), and committed action ($M = 2.78$, $SD = 0.76$). Of note, each process was rated “5” for at least one session, indicating that each process was covered in an in-depth manner. Moreover, therapist adherence to the treatment model and therapist competency were rated highly ($M = 4.00$, $SD = 0.67$) and ($M = 4.20$, $SD = 0.51$), respectively. Finally, all ACT inconsistent processes were rated “1” for every session, indicating that they were not present.

Examination of Data

Boxplots for each outcome and process variable were examined at each time point in order to detect potential outliers. No outliers (as defined by greater than 3 box lengths from the mean) were found. However, eight potential outliers (as defined by greater than 1.5 box lengths from the mean) were found. These included one high and one low MGH-HPS score and two low VQ progress scores at pre-treatment, one low VQ progress score at post-waitlist, one low VQ progress score at mid-treatment, one low VQ progress score at post-treatment, and one high MGH-HPS score at follow-up. Each of these scores were

examined and not deemed unusual for the given measure or sample and therefore retained for all analyses.

All variables included in analyses were examined to assess for assumptions of normality. All were normally distributed as assessed by the Shapiro-Wilk test ($ps > .05$) and Normal Q-Q Plots. Additionally, there was homogeneity of variances as assessed by Levene's test ($ps > .05$).

Differences Between Conditions

Comparisons between the treatment and waitlist group were made for each demographic, dependent, and independent variable to examine potential differences between the groups. Welch's t -tests were used for continuous data and Pearson's chi-squared tests were used for categorical data. No significant differences between treatment and waitlist conditions were found for any variables at intake ($ps > .05$), thus indicating that the groups were similar upon entering the study. See Table 3 for complete comparison data.

Table 3
Descriptive Statistics with Welche's t-Test or Pearson's Chi Squared Comparisons Between Groups

| Variable | Treatment (n = 12) | | | | Waitlist (n = 10) | | | | <i>t</i> / <i>X</i> ² | <i>p</i> |
|--------------------|--------------------|------|----------|-----------|-------------------|------|----------|-----------|----------------------------------|----------|
| | <i>n</i> | % | <i>M</i> | <i>SD</i> | <i>n</i> | % | <i>M</i> | <i>SD</i> | | |
| Age | | | 34.2 | 9.4 | | | 30.4 | 6.8 | 1.09 | .29 |
| Sex | | | | | | | | | .03 | .87 |
| Male | 1 | 8.3 | | | 2 | 20.0 | | | | |
| Female | 11 | 91.7 | | | 8 | 80.0 | | | | |
| Sexual orientation | | | | | | | | | 4.75 | .19 |
| Heterosexual | 11 | 91.7 | | | 7 | 70.0 | | | | |
| Gay or lesbian | - | - | | | 2 | 20.0 | | | | |
| Bisexual | - | - | | | 1 | 10.0 | | | | |
| Other | 1 | 8.3 | | | - | - | | | | |
| Race/ethnicity | | | | | | | | | .01 | .93 |
| White | 12 | 100 | | | 9 | 90.0 | | | | |
| Asian | - | - | | | 1 | 10.0 | | | | |
| Hispanic or Latinx | 1 | 8.3 | | | - | - | | | | |
| Education | | | | | | | | | 2.99 | .39 |
| High school | 3 | 25.0 | | | - | - | | | | |
| Some college | 3 | 25.0 | | | 4 | 40.0 | | | | |
| Bachelor's degree | 3 | 25.0 | | | 3 | 30.0 | | | | |
| Graduate degree | 3 | 25.0 | | | 3 | 30.0 | | | | |
| Marital status | | | | | | | | | .03 | .87 |
| Single | 2 | 16.7 | | | 4 | 40.0 | | | | |
| Married | 8 | 66.7 | | | 5 | 50.0 | | | | |
| Divorced | 1 | 8.3 | | | 1 | 10.0 | | | | |
| Remarried | 1 | 8.3 | | | - | - | | | | |
| Monthly income | | | | | | | | | 3.04 | .22 |
| \$1,000 to \$2,999 | 3 | 25.0 | | | 6 | 60.0 | | | | |
| \$3,000 to \$7,999 | 6 | 50.0 | | | 2 | 20.0 | | | | |
| More than \$7,999 | 3 | 25.0 | | | 2 | 20.0 | | | | |
| MGH-HPS | | | 15.6 | 5.2 | | | 14.9 | 3.0 | .38 | .71 |
| QOLS | | | 80.0 | 13.3 | | | 81.6 | 12.2 | .29 | .77 |
| MIST-A automatic | | | 26.0 | 10.4 | | | 30.4 | 6.3 | 1.18 | .25 |
| MIST-A focused | | | 34.3 | 11.6 | | | 36.4 | 20.7 | .28 | .78 |
| AAQ-TTM | | | 40.2 | 8.2 | | | 41.3 | 8.2 | .32 | .75 |
| ESS total | | | 59.4 | 19.0 | | | 61.1 | 14.1 | .24 | .81 |
| ESS character | | | 27.8 | 10.8 | | | 28.8 | 6.5 | .26 | .80 |
| ESS behavior | | | 19.7 | 6.5 | | | 22.9 | 7.5 | 1.04 | .31 |
| ESS body | | | 10.7 | 3.0 | | | 9.4 | 2.5 | 1.10 | .29 |
| VQ obstruction | | | 12.8 | 7.2 | | | 13.7 | 6.9 | .29 | .78 |

| | | | | | | |
|--------------------------|------|-----|------|-----|------|-----|
| VQ progress ^a | 15.4 | 4.1 | 17.5 | 5.0 | 1.06 | .30 |
|--------------------------|------|-----|------|-----|------|-----|

Note. AAQ-TTM = Acceptance and Action Questionnaire for Trichotillomania; ESS = Experience of Shame Scale; MGH-HPS = Massachusetts General Hospital Hair Pulling Scale; MIST-A = Milwaukee Inventory for Styles of Trichotillomania – Adult Version; QOLS = Quality of Life Scale; VQ = Valuing Questionnaire.

^aSubscale missing item 5.

Condition Comparison Summary

Table 4 summarizes outcome variable means and standard deviations for the treatment and waitlist groups at time 1 (pre-treatment and pre-waitlist) and time 2 (post-treatment and post-waitlist). In addition, Figure 2 displays these data as line graphs. ANCOVAs were used to evaluate differences between the treatment and waitlist condition for each variable of interest at post-treatment, controlling for pre-treatment levels.

Table 4
Outcome Means and Standard Deviations at Times 1 and 2 By Condition

| Variable | Time 1 | | | | Time 2 | | | |
|--------------------------|-------------------------------|-----------|------------------------------|-----------|-------------------------------|-----------|-----------------------------|-----------|
| | Treatment (<i>n</i> = 12) | | Waitlist (<i>n</i> = 10) | | Treatment (<i>n</i> = 11) | | Waitlist (<i>n</i> = 9) | |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| MGH-HPS | 15.58 | 5.21 | 14.90 | 3.00 | 9.00 | 4.52 | 18.10 | 5.00 |
| QOLS | 80.00 | 13.25 | 81.60 | 12.21 | 86.91 | 15.10 | 79.70 | 12.65 |
| MIST-A automatic | 26.00 | 10.45 | 30.40 | 6.26 | 25.91 | 10.57 | 29.80 | 8.78 |
| MIST-A focused | 34.33 | 11.59 | 36.40 | 20.68 | 35.50 | 12.79 | 42.20 | 18.75 |
| AAQ-TTM | 40.17 | 8.16 | 41.30 | 8.21 | 32.30 | 10.86 | 39.90 | 10.90 |
| ESS total | 59.36 | 18.98 | 61.10 | 14.09 | 54.45 | 19.69 | 64.70 | 17.52 |
| ESS character | 27.83 | 10.79 | 28.80 | 6.51 | 25.73 | 11.12 | 31.60 | 9.74 |
| ESS behavior | 19.73 | 6.47 | 22.90 | 7.48 | 18.36 | 6.59 | 23.30 | 6.57 |
| ESS body | 10.67 | 2.96 | 9.40 | 2.46 | 10.36 | 4.08 | 9.80 | 3.36 |
| VQ obstruction | 12.83 | 7.21 | 13.70 | 6.93 | 11.00 | 6.72 | 15.00 | 6.93 |
| VQ progress ^a | 15.42 | 4.08 | 17.50 | 4.97 | 17.50 | 3.24 | 13.20 | 5.59 |

Note. AAQ-TTM = Acceptance and Action Questionnaire for Trichotillomania; ESS = Experience of Shame Scale; MGH-HPS = Massachusetts General Hospital Hair Pulling Scale; MIST-A = Milwaukee Inventory for Styles of Trichotillomania – Adult Version; QOLS = Quality of Life Scale; VQ = Valuing Questionnaire.

^aSubscale missing item 5.

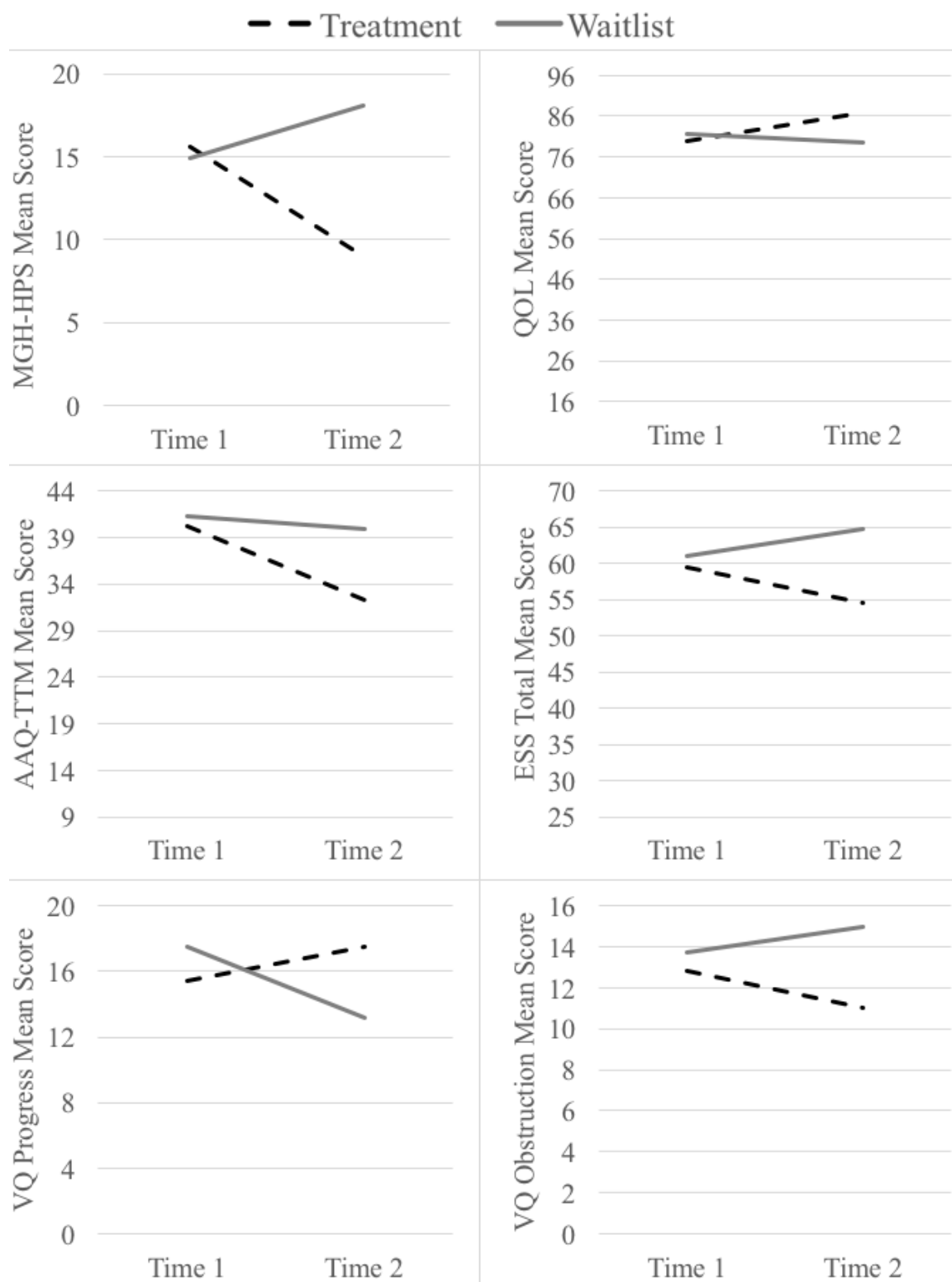


Figure 2. Line graphs of variables of interest from Time 1 to Time 2 by group

Effects on Hair Pulling Severity

After adjusting for pre-treatment MGH-HPS scores, there was a statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 19.627$, $p < .001$, $\omega^2 = .473$. MGH-HPS scores were statistically significantly greater in the waitlist condition (18.10 ± 4.52) compared to the treatment condition (9.00 ± 5.00), a mean difference of 9.32 ($p < .001$). The treatment group displayed a 42.2% decrease in MGH-HPS scores, while the waitlist group displayed a 17.7% increase from time 1 to time 2. Seven of the 12 (58.3%) treatment completers saw MGH-HPS score reductions of seven points or greater, indicating clinically significant improvement. These findings indicate that, on average, treatment had a significant, large effect on hair pulling severity.

Effects on Quality of Life

After adjusting for pre-treatment QOLS scores, there was no statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 1.910$, $p = .183$, $\omega^2 = .032$. On average, the treatment groups displayed an 8.0% increase in QOLS scores, indicating a slight improvement in quality of life from pre- to post-treatment. This improvement was a nonsignificant change compared to the waitlist group.

Effects on Psychological Flexibility

After adjusting for pre-treatment AAQ-TTM scores, there was no statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 3.790$, $p = .068$, $\omega^2 = .064$. On average, the treatment groups displayed a 19.6% decrease in AAQ-TTM scores, indicating improved trichotillomania-related psychological flexibility from

pre- to post-treatment. This improvement was a nonsignificant change compared to the waitlist group which displayed a 3.4% decrease in scores.

Effects on Shame

Total scores. After adjusting for pre-treatment ESS total scores, there was no statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 3.360, p = .084, \omega^2 = .032$. On average, the treatment groups displayed an 8.3% decrease in ESS total scores, indicating a slight improvement in overall experienced shame from pre- to post-treatment. This improvement was a nonsignificant change compared to the waitlist group which displayed a 5.6% increase in scores.

Character-related shame. After adjusting for pre-treatment ESS character scores, there was no statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 4.06, p = .059, \omega^2 = .050$. On average, the treatment groups displayed a 7.6% decrease in ESS character scores, indicating a slight improvement in character-related experienced shame from pre- to post-treatment. This improvement was a nonsignificant change compared to the waitlist group which displayed an 8.9% increase in scores.

Behavior-related shame. After adjusting for pre-treatment ESS behavior scores, there was no statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 2.68, p = .120, \omega^2 = .021$. On average, the treatment groups displayed a 6.6% decrease in ESS character scores, indicating a slight improvement in behavior-related experienced shame from pre- to post-treatment. This improvement was a nonsignificant change compared to the waitlist group which displayed an 1.7% increase in scores.

Body-related shame. After adjusting for pre-treatment ESS body scores, there was no statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 4.83, p = .338, \omega^2 = .001$. On average, the treatment and waitlist groups displayed no meaningful change on body-related shame from time 1 to time 2.

Effects on Values

Obstruction. After adjusting for pre-treatment VQ obstruction scores, there was a statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 5.05, p = .037, \omega^2 = .062$. VQ obstruction scores were statistically significantly greater in the waitlist condition (15.00 ± 6.93) compared to the treatment condition (11.00 ± 6.72), a mean difference of 3.80 ($p = .037$). On average, the treatment groups displayed a 14.3% decrease in VQ obstruction scores, indicating a decrease in behaviors that hinder valued living from pre- to post-treatment. This improvement was a significant change compared to the waitlist group which displayed an 8.7% increase in scores.

Progress. After adjusting for pre-treatment VQ progress scores, there was a statistically significant difference in post-treatment scores between conditions, $F(1, 18) = 20.900, p < .001, \omega^2 = .295$. VQ obstruction scores were statistically significantly greater in the waitlist condition (17.50 ± 3.24) compared to the treatment condition (13.20 ± 5.59), a mean difference of 6.06 ($p < .001$). On average, the treatment groups displayed a 11.9% increase in VQ progress scores, indicating increased movement toward values from pre- to post-treatment. This improvement was a nonsignificant change compared to the waitlist group which displayed a 24.6% decrease in scores.

Combined Follow-up Analysis

The treatment and waitlist group treatment data were combined and examined using mixed model repeated measures analyses across four time-points (i.e., pre-treatment, mid-treatment, post-treatment, and 3-month follow-up). See table 5 for a summary of outcome variable means and standard deviations at each time point, Table 6 for results of the mixed models repeated measures analyses, and Figure 3 for line graphs visualizing the same data.

Effects on Hair Pulling Severity

Significant improvements on MGH-HPS scores were observed from pre- to post-treatment, slope estimate = -6.13, $SE = 1.30$, $t(58.48) = -4.72$, $p < .001$. On average, scores decreased 39.4% from pre- post-treatment with 12 (60.0%) participants demonstrating reductions of seven points or greater, indicating clinically significant reductions in hair pulling severity. This percentage decreased to 26.3% at follow-up with seven (36.8%) maintaining clinically significant score reductions three months following treatment. On average, the score increases from post-treatment to follow-up were nonsignificant, slope estimate = -1.95, $SE = 1.34$, $t(57.19) = 1.45$, $p = .152$.

Effects on Quality of Life

QOLS scores did not significantly change from pre- to post-treatment, slope estimate = 5.58, $SE = 3.36$, $t(57.92) = 1.66$, $p = .103$. On average, scores increased 6.9% from pre- to post-treatment with 11 (55.0%) participants demonstrating increases of seven points or greater, indicating clinically significant increases in quality of life. This percentage decreased to 3.4% at follow-up, with seven (36.8%) participants demonstrating clinically significant score increases three months following treatment. On

average, the score decreases from post-treatment to follow-up were nonsignificant, slope estimate = 3.20, $SE = 3.45$, $t(56.48) = 0.93$, $p = .358$.

Effects on Psychological Flexibility

Significant improvements on AAQ-TTM scores were observed from pre- to post-treatment, slope estimate = -11.78, $SE = 2.01$, $t(55.85) = -5.85$, $p < .001$. On average, scores decreased 28.1% from pre- to post-treatment and remained relatively stable through follow-up with a 26.5% decrease from pre-treatment to follow-up. On average, the score increases from post-treatment to follow-up were nonsignificant, slope estimate = 1.01, $SE = 2.06$, $t(54.58) = 0.49$, $p = .627$.

Effects on Shame

ESS total scores decreased nonsignificantly from pre- to post-treatment, slope estimate = -2.54, $SE = 2.54$, $t(56.37) = -1.00$, $p = .321$. Scores decreased only 3.1% from pre- to post-treatment. However, at follow-up this change was 18.2% from pre-treatment. On average, participants demonstrated a significant decrease in scores from post-treatment to follow-up, slope estimate = -8.50, $SE = 2.55$, $t(55.17) = -3.33$, $p = .002$. This pattern was consistent for the character (3.6% and 19.8% decreases), behavior (3.2% and 17.8% decreases), and body (3.9% *increase* and 9.7% *decrease*) subscales. In addition, the total and subscale scores each began above or similar to the norms from the original validation study (+4.61, +3.84, -0.01, +0.27, respectively) and decreased below them at follow-up (-6.32, -1.75, -3.78, -0.71, respectively), indicating meaningful changes in shame from pre-treatment to follow-up.

Effects on Values

Obstruction. Significant improvements on VQ obstruction scores were observed from pre- to post-treatment, slope estimate = -3.52, $SE = 1.42$, $t(57.06) = -2.47$, $p = .016$. On average, the score increases from post-treatment to follow-up were nonsignificant, slope estimate = -1.01, $SE = 1.46$, $t(55.60) = -0.69$, $p = .493$. However, overall improvements from pre-treatment to follow-up were significant, slope estimate = 4.53, $SE = 1.45$, $t(57.27) = 3.13$, $p = .003$. Scores decreased 23.7% from pre- to post-treatment and 33.6% from pre-treatment to follow-up.

Progress. VQ progress score improvements from pre- to post-treatment were nonsignificant, slope estimate = 1.35, $SE = .94$, $t(57.12) = 1.44$, $p = .154$. Improvements from post-treatment to follow-up were also nonsignificant, slope estimate = .44, $SE = .96$, $t(55.76) = .46$, $p = .648$. Scores increased 7.2% from pre- to post-treatment and 12.8% from pre-treatment to follow-up.

Table 5
Combined Outcome Means and Standard Deviations at Pre-, Mid-, and Post-Treatment and 3 Month Follow-Up

| Variable | Pre-treatment (<i>n</i> = 22) | | Mid-treatment (<i>n</i> = 20) | | Post-treatment (<i>n</i> = 20) | | Follow-up (<i>n</i> = 19) | |
|--------------------------|-----------------------------------|-----------|-----------------------------------|-----------|------------------------------------|-----------|-------------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| MGH-HPS | 15.27 | 4.27 | 10.20 | 4.16 | 9.25 | 4.24 | 11.26 | 5.97 |
| QOLS | 80.73 | 12.51 | 85.50 | 12.94 | 86.70 | 16.47 | 83.71 | 19.06 |
| MIST-A automatic | 28.10 | 8.79 | 28.65 | 8.31 | 26.20 | 10.68 | 23.58 | 9.60 |
| MIST-A focused | 35.27 | 15.96 | 41.45 | 15.13 | 39.47 | 17.29 | 31.89 | 18.64 |
| AAQ-TTM | 40.68 | 8.00 | 35.37 | 10.96 | 29.26 | 11.17 | 29.89 | 8.77 |
| ESS total | 60.19 | 16.44 | 61.10 | 13.85 | 58.30 | 17.73 | 49.26 | 11.96 |
| ESS character | 28.27 | 8.91 | 28.70 | 7.87 | 27.25 | 10.13 | 22.68 | 6.16 |
| ESS behavior | 21.24 | 5.98 | 21.95 | 5.65 | 20.55 | 6.71 | 17.47 | 5.38 |
| ESS body | 10.09 | 2.76 | 10.45 | 3.09 | 10.50 | 3.66 | 9.11 | 3.23 |
| VQ obstruction | 13.23 | 6.93 | 11.26 | 5.34 | 10.10 | 6.32 | 8.79 | 5.07 |
| VQ progress ^a | 16.36 | 4.52 | 17.60 | 3.38 | 17.63 | 4.81 | 18.26 | 3.89 |

Note. AAQ-TTM = Acceptance and Action Questionnaire for Trichotillomania; ESS = Experience of Shame Scale; MGH-HPS = Massachusetts General Hospital Hair Pulling Scale; MIST-A = Milwaukee Inventory for Styles of Trichotillomania – Adult Version; QOLS = Quality of Life Scale; VQ = Valuing Questionnaire.

^aSubscale missing item 5.

Figure 3. Line graphs of variables of interest from pre-treatment to follow-up.

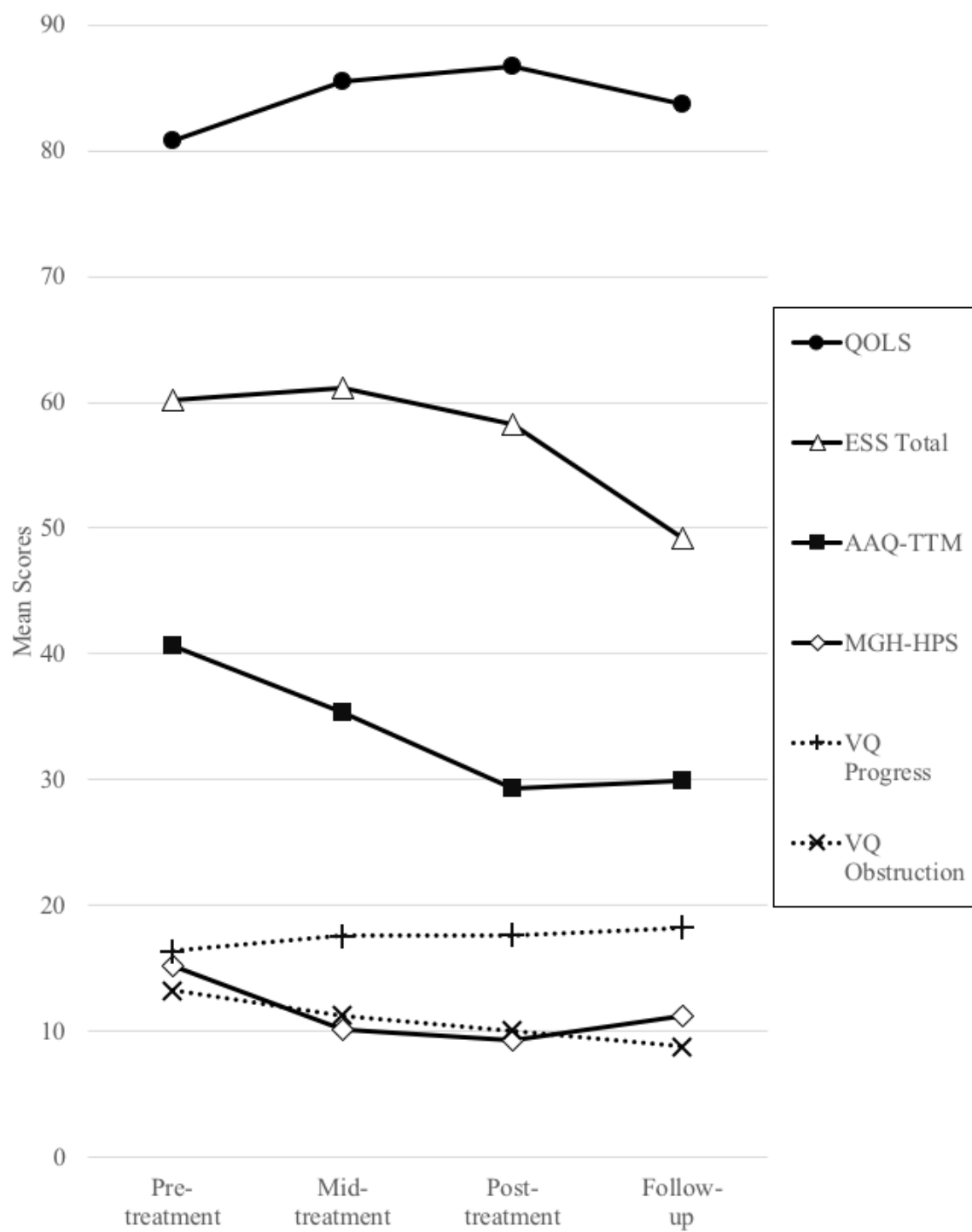


Table 6
Mixed Models Repeated Measures Results for Changes Within Treatment

| | Slope Estimate | Standard Error | df | <i>t</i> -value | <i>p</i> |
|-------------------|-------------------|-------------------|-------|-----------------|----------|
| MGH-HPS | | | | | |
| Pre to Mid | -5.18 | 1.30 | 58.48 | -3.99 | < .001 |
| Pre to Post | -6.13 | 1.30 | 58.48 | -4.72 | < .001 |
| Pre to Follow-up | -4.18 | 1.32 | 58.92 | -3.17 | .002 |
| Post to Follow-up | 1.95 | 1.34 | 57.19 | 1.45 | .152 |
| QOLS | | | | | |
| Pre to Mid | 4.37 | 3.31 | 57.90 | 1.32 | .192 |
| Pre to Post | 5.57 | 3.31 | 57.90 | 1.68 | .098 |
| Pre to Follow-up | 2.48 | 3.37 | 58.06 | 0.74 | .465 |
| Post to Follow-up | 3.09 | 3.40 | 56.46 | 0.91 | .366 |
| AAQ-TTM | | | | | |
| Pre to Mid | -5.33 | 2.01 | 55.85 | -2.65 | .010 |
| Pre to Post | -11.78 | 2.01 | 55.85 | -5.85 | < .001 |
| Pre to Follow-up | -10.77 | 2.01 | 55.85 | -5.35 | < .001 |
| Post to Follow-up | 1.01 | 2.06 | 54.48 | 0.49 | .627 |
| ESS total | | | | | |
| Pre to Mid | 0.26 | 2.54 | 56.37 | 0.10 | .919 |
| Pre to Post | -2.54 | 2.54 | 56.37 | -1.00 | .321 |
| Pre to Follow-up | -11.04 | 2.58 | 56.44 | -4.27 | < .001 |
| Post to Follow-up | -8.50 | 2.55 | 55.17 | -3.33 | .002 |
| VQ obstruction | | | | | |
| Pre to Mid | -2.05 | 1.45 | 57.27 | -1.42 | .162 |
| Pre to Post | -3.52 | 1.42 | 57.06 | -2.47 | .016 |
| Pre to Follow-up | -4.53 | 1.45 | 57.27 | -3.13 | .003 |
| Post to Follow-up | -1.01 | 1.46 | 55.60 | -0.69 | .493 |
| VQ progress | | | | | |
| Pre to Mid | 1.24 | 0.92 | 56.94 | 1.35 | .183 |
| Pre to Post | 1.35 | 0.94 | 57.12 | 1.44 | .154 |
| Pre to Follow-up | 1.79 | 0.94 | 57.12 | 1.91 | .061 |
| Post to Follow-up | 0.44 | 0.96 | 55.76 | 0.46 | .648 |

Note. AAQ-TTM = Acceptance and Action Questionnaire for Trichotillomania; ESS = Experience of Shame Scale; MGH-HPS = Massachusetts General Hospital Hair Pulling Scale; QOLS = Quality of Life Scale; VQ = Valuing Questionnaire.

Telehealth Factors

At intake, participants were asked questions related to their reasons for seeking treatment and whether the telehealth aspect of the treatment interested them. See Table 6 for a summary. Forty percent of the participants reported that they would not have been seeking treatment if it were not provided over the internet. Moreover, 59.1% said that they were unable to find treatment for trichotillomania where they lived. Thus, telehealth

was the only feasible treatment option for over half of the participants. Additionally, half of the participants reported that their busy schedule inhibited them from seeking face-to-face therapy. Because these individuals signed up for the study, the prospect of telehealth may have been more convenient than face-to-face therapy.

Table 7
Participant Interest in Telehealth Treatment

| Variable | <i>N / Mean</i> | <i>% / SD</i> |
|--|-----------------|---------------|
| Would you be seeking treatment if it was not provided over the internet? | | |
| Yes | 13 | 59.9 |
| No | 9 | 40.1 |
| What circumstances would inhibit you from attending face-to-face therapy? | | |
| Busy schedule | 11 | 50.0 |
| Trichotillomania treatment is not available near me | 13 | 59.1 |
| Lack of money or resources (e.g., travel, bus fair, gas money, child care) | 8 | 36.4 |

Working Alliance

Participants were assessed for therapist-client working alliance following session five (mid-treatment) and at post-treatment. The majority of participants averaged scores of four or greater at post-treatment (goal = 90%, task = 80%, bond = 80%), indicating very good levels of perceived therapeutic alliance. See Table 7 for a summary of mean scores and standard deviations. Moreover, very few participants had mean scores below three, and most were above four. At post-treatment, two participants scored below a three on the task subscale, and only one scored below a three on the goal and bond subscales. See Figure 4 for box plots and individual participant mean scores. For comparison, the

mean WAI-SR scores in the current study were all higher than the mean scores gathered in the original development of the measure (Munder, Wilmers, Leonhart, Linster, & Barth, 2010). The original mean scores were gathered from 88 outpatients at a university clinic (goal = 4.0, task = 3.4, bond = 4.0, total = 3.8). In comparison to these scores, participants in the current study reported greater levels of perceived therapeutic alliance.

The task subscale was slightly lower than other subscales at mid-point (3.90), perhaps indicating some therapist-participant disagreement on how to best work toward the participant's goals. The mid-point assessment immediately followed sessions that presented acceptance as an alternative to control strategies. This creative hopelessness process and identification of control as the problem with acceptance as a new strategy is often novel and at times confusing to participants. At this point in treatment, being asked to make space for difficult internal events may not seem like a solution to some problems. In short, clients may not have fully bought into this approach at this point in treatment. Therefore, participants may have scored items such as 12 ("I believe the way we are working with my problems is correct."), lower at this point in treatment. The task subscale score notably improved at the post-treatment assessment (4.39), indicating that participants felt that, on average, the methods introduced in treatment were largely helpful in helping them achieve their goals.

Table 8
Client Satisfaction and Working Alliance Means and Standard Deviations

| Variable | Mid-treatment (<i>n</i> = 20) | | Post-treatment (<i>n</i> = 20) | | Follow-up (<i>n</i> = 19) | |
|--------------|-----------------------------------|-----------|------------------------------------|-----------|-------------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| CSQ-8 | 29.20 | 3.16 | 29.65 | 5.48 | 29.20 | 3.16 |
| WAI-SR total | 4.36 | 1.75 | 4.49 | 2.62 | - | - |
| WAI-SR goal | 4.59 | 0.51 | 4.56 | 0.73 | - | - |
| WAI-SR task | 3.90 | 0.97 | 4.39 | 1.06 | - | - |
| WAI-SR bond | 4.58 | 0.52 | 4.53 | 0.93 | - | - |

Note. CSQ-8 = Client Satisfaction Questionnaire–8; WAI-SR = Working Alliance Inventory–Short Revised.

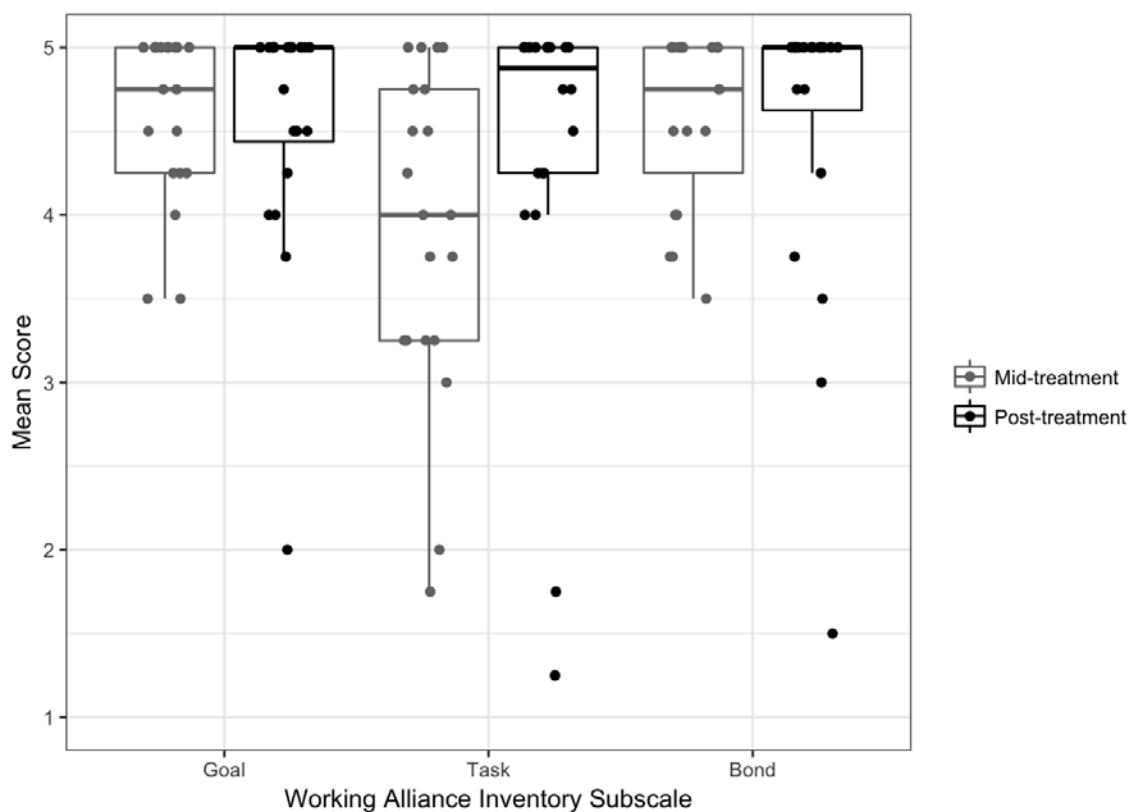


Figure 4. Boxplots with individual participant data points of client-rated working alliance scores at mid- and post-treatment by subscale.

Treatment Satisfaction

Participants were assessed for their satisfaction with treatment following session five (mid-treatment), at post-treatment, and at follow-up. Overall, scores indicated a high level of treatment satisfaction. Moreover, average rating scores were relatively stable across each assessment period. See Table 8 for a summary of mean scores and standard deviations. No norms exist for the CSQ-8 to compare to the current sample, although an original psychometric analysis of the measure reported mean scores of 3.02 (0.57) out of 4 from a sample of 45 community mental health center patients (Attkisson & Zwick, 1982). In comparison, mean scores for the current sample were 3.65 (0.40), 3.71 (0.69),

and 3.65 (0.48) at mid-treatment, post-treatment, and follow-up, respectively. See Figure 5 for box plots and individual participant CSQ-8 mean scores.

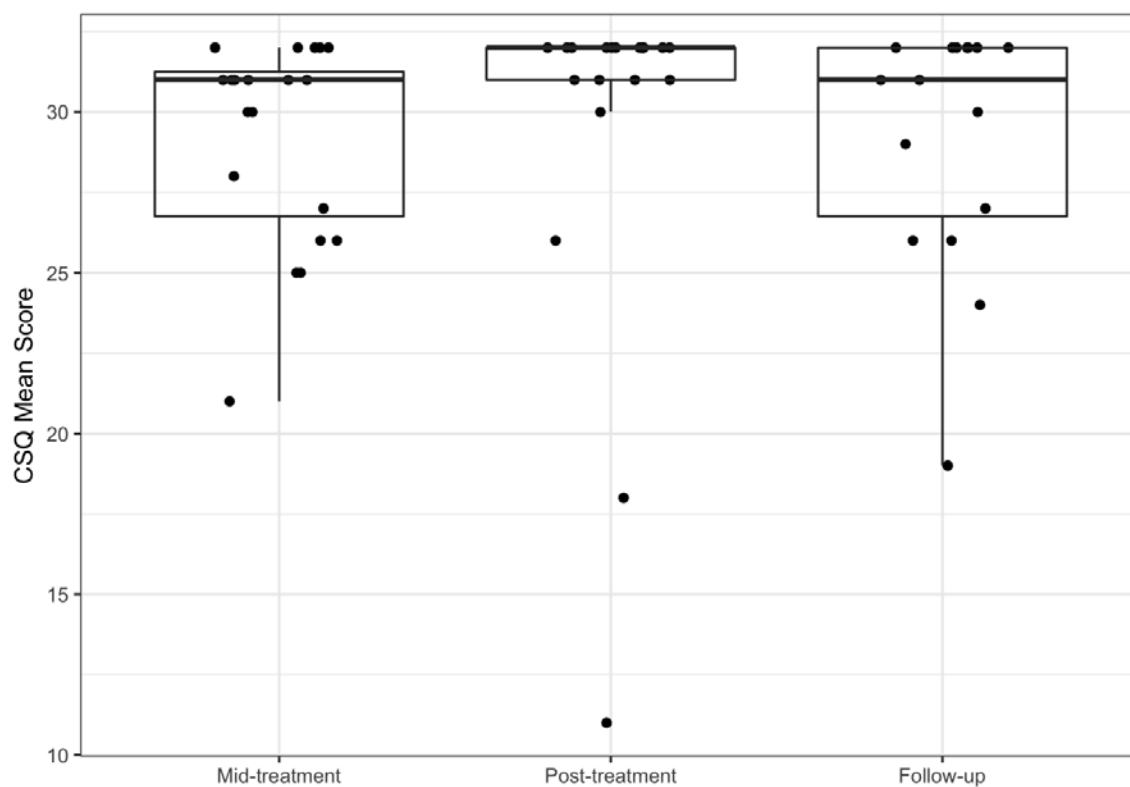


Figure 5. Boxplots with individual participant data points of client-rated treatment satisfaction scores at mid-treatment, post-treatment, and follow-up.

CHAPTER V

DISCUSSION

Primary Outcomes

The current study attempted to examine whether ACT-enhanced behavior therapy could successfully be delivered by way of telepsychology. The primary measures for success were defined as significant reductions in hair pulling severity and significantly increased quality of life. On average, participants in the treatment condition reported significant, large reductions in hair pulling severity from pre- to post-treatment, compared to those in the waitlist condition. However, reported quality of life did not improve in the same manner, with only small, nonsignificant increases from pre- to post-treatment.

Once the treatment and waitlist groups were combined and three-month follow-up data were examined, the story of these outcomes shifts. As is typical for trichotillomania, rates of symptom severity declined on average following treatment. Hair pulling severity rates at follow-up were still significantly lower than at the beginning of treatment, but they were not as low as they were at post-treatment. Overall, these rates of improvement are comparable to other ACT-enhanced behavior therapy trials. For example, one trial found 44.8% and 24.0% decreases in MGH-HPS scores post-treatment and follow-up, respectively, compared to 39.4% and 26.3% in the current trial (Woods et al., 2006c).

On average, quality of life did not significantly change over the course of treatment. Many participants did see clinically significant rates of improvement in quality

of life, however. nearly half (45.0%) did not see this level of improvement at post-treatment and nearly two thirds (63.2%) did not at follow-up.

Secondary Outcomes

The VQ was the only secondary outcome variable that demonstrated significant improvement from pre- to post-treatment compared to the waitlist condition. Participants reported statistically significant, medium reductions in behaviors that obstructed valued living, such as avoidance of internal experiences and distraction from personal values. Moreover, participants reported statistically significant, large improvements in making progress toward becoming more aware of personal values and successful engagement in valued behavior. When combined into a single treatment group, participants demonstrated significant reductions in obstruction from valued living from pre-treatment to follow-up, but not in progress toward valued living.

On average, participants in the treatment condition did not report improved levels of trichotillomania-related psychological flexibility or shame from pre- to post-treatment compared to the waitlist condition. However, both saw improvement in the desired direction with a medium effect size for psychological flexibility and a small effect size for overall shame. Moreover, on average, psychological flexibility and shame saw statistically significant improvements from pre-treatment to follow-up.

The pattern of improvement for shame is notable in that it remained relatively stable from pre- to post-treatment, but saw a delayed statistically significant reduction following treatment. This delayed effect could be due to multiple factors. The ESS demonstrates high levels of test-retest reliability over an 11-week period (.83), indicating that it is measuring a trait-like disposition rather than a transient affective state.

Therefore, it might take some time before changes are demonstrated on this scale. Experiences of shame may also be ameliorated as values consistent behavior is more actively engaged in and as quality of life improves. Finally, increased levels of psychological flexibility could also potentially play a role. Andrews et al. (2002) hypothesized that shame may be part of a reciprocal interaction between dysfunctional, self-critical cognitions and self-evaluations that may amplify feelings of shame. As psychological flexibility increases, self-critical thoughts may not be as meaningful and result in fewer feelings of shame. Moreover, the experiences of shame themselves might have less of an impact as one becomes more skilled at making space for these experiences and not over identifying with them.

Overall, outcome variables of interest tended to improve from pre- to post-treatment compared to the waitlist control group. When the groups were then combined, the within group effects were magnified such that significant changes in all outcome and process variables, save quality of life and progress toward valued living, were demonstrated from pre-treatment to follow-up.

Applied Implications

A major purpose of the current study was to examine the feasibility of delivering treatment for trichotillomania through telepsychotherapy. Overall, it appears that ACT-enhanced behavior therapy can be successfully delivered using telepsychology methods. Findings from the current study are similar to ACT-enhanced behavior therapy trials delivered by way of more traditional face-to-face methods, providing further evidence for this treatment package. The findings included significant reductions in hair pulling

severity over the course of treatment with similar levels of maintenance at follow-up to other trials.

In addition, participant ratings of treatment satisfaction and working alliance were very high. Intuitively, one might suspect that telepsychology would involve a tradeoff between the technology and the therapist-participant relationship that might not favor these types of ratings. However, it appears that treatment satisfaction and working alliance were at least as high as similar face-to-face trials.

In part, the high treatment satisfaction ratings might be related to the unique qualities of telepsychology. The convenience of participating in therapy from home cannot be overstated. Multiple participants in the study reported being very time-constrained and appreciated the flexibility of telepsychology. Indeed, half of participants reported that their busy schedule inhibited them from attending face-to-face therapy. Another factor likely contributing to treatment satisfaction is telepsychology's ability to treat those who would otherwise be unable to find quality treatment. Half of participants reported having previously sought treatment for trichotillomania and nearly 60% reported that treatment for trichotillomania was not available near where they lived. Finally, treatment was provided free of charge for participation in the study, which could have contributed to satisfaction with treatment. Overall, it appears that the use of telepsychology in the current study led to individuals receiving treatment who otherwise would not have due to inconvenience, lack of availability, or lack of resources.

Shame is another factor that may have kept people from previously seeking treatment and that might have been mitigated by telepsychotherapy. Individuals with trichotillomania typically have elevated levels of shame related to their urges and pulling

behaviors (Stemberger, Thomas, Mansueto, & Carter, 2000; Weingarden & Renshaw, 2015) and it appears that shame may be a barrier to treatment for some (Singh, Wetterneck, Williams, & Knott, 2016). On average, participants reported that trichotillomania had been a problem for over 16 years, yet half had not sought treatment. Unfortunately, the current study did not directly assess whether shame was a factor in not seeking treatment; however, participants reported high levels of shame, on average, upon entering the study. The convenience and discretion that telepsychology offers individuals who would perhaps otherwise be unwilling to seek therapy could be an important benefit of the method. Future research should examine the role of experiences such as shame, guilt, and embarrassment in seeking treatment and whether telepsychology improves rates of treatment seeking among these individuals.

Among these benefits, telepsychotherapy also introduces some difficulties to trichotillomania treatment. Real or perceived technical barriers may be intimidating to some as they begin treatment. The current study required participants to independently install software on their computer, create an account, and sign in to the video conferencing software. Detailed setup instructions were provided to participants and phone support was needed in a couple of instances. This process, while not overly arduous, could be a barrier for some. Luckily, this was not a barrier to treatment in the current study. All participants were able to eventually set up and learn the software. Modern methods exist that greatly reduce this technical barrier, although they are generally costly and often not suitable for small trials or individual therapists. However, this hurdle is sure to be reduced as video conferencing software progresses and telehealth popularity increases.

Outside of software setup and use, technical difficulties such as dropped connections and lag between the therapist and participant, can hinder treatment. Occasionally, the video conferencing software did not function properly or the internet connection would be very poor requiring the remainder of the session to be completed using the telephone. In total, 11 of the 197 (5.6%) sessions required some use of the telephone. Lag or dropped connections were a more common problem, but did not severely negatively impact treatment.

Finally, working with participants while they are in their homes presents unique challenges not present in traditional therapy. Participants have an added responsibility to tailor their environment in a way that promotes quality treatment and confidentiality. Participants can easily become distracted with personal items, notifications on their computer or phone, or even children, partners, or friends in their home. Moreover, the home environment promotes a casual atmosphere that can perhaps affect treatment. These concerns were addressed in the first session with additional reminders as needed throughout treatment.

Despite the difficulties inherent in telepsychology, treatment was largely successful. The format presents unique difficulties, but also distinct benefits not found in traditional face-to-face treatment. Participants reported high levels of satisfaction with treatment and perceived therapist-participant working alliance. Furthermore, the therapists reported that for the majority of the clinical process, the telepsychology format faded to the background and that sessions were more similar to face-to-face treatment than different. Overall, it appears that the study was not negatively impacted by the

telepsychology format and rather, benefited participants who otherwise likely would not have received treatment.

Limitations

Multiple considerations must be accounted for when interpreting the findings of the current study. As discussed, the use of telepsychology introduced difficulties not otherwise present in traditional clinical research, such as occasional lag in conversations, poor video quality, and an overall less controlled and more distracting environment. These factors reduced experimental control (internal validity) while increasing generalizability (external validity). Despite these concerns, the findings were consistent with face-to-face treatment. Telepsychology also reduced the ability for the therapist to notice and track physical changes in hair growth or notice the physical results of hair pulling between sessions. The video resolution simply did not allow the therapist to see these changes in any detail. This increased the reliance on participants to accurately report changes, decreasing experimental control.

The participant sample was diverse in some respects, but not others. The ratio of male to female participants was typical of trichotillomania research, with women over-represented. The sample was somewhat diverse with regard to sexual orientation, education, marital status, income, and comorbid diagnoses, however, the vast majority (95.5%) of participants were White. While the current study was advertised online and at university counseling centers across Utah, the sample was heavily skewed in favor of White participants. The most recent census data describe 21.2% of Utah's population as non-exclusively White (United States Census Bureau, 2016), thus, a more representative sample would be desired. Offering treatment only in English, likely contributed to this

issue. Future treatment studies should attempt to offer treatment in languages that meet the needs of the sample distribution's demographic. Furthermore, treatment advertising efforts should better attempt to target more ethnically and racially diverse populations. For example, advertisements could be placed in community centers and hair care service locations that tend to serve minority populations. Very little trichotillomania research has examined non-White populations and this study, unfortunately, is no different. Increasing the ethnic and racial diversity of the sample would increase generalizability and allow for a better understanding of treatment in non-White populations.

As previously noted, item five of the VQ progress measure was missing from the assessment batteries at all time points, thus reducing the validity of the measure. All VQ progress-related outcomes should be interpreted with this in mind. The measure still displayed acceptable internal consistency, however. Additionally, the remaining four items consist of relatively face-valid phrases that appear to comprise much of the process' intended meaning.

All outcome variables were obtained through client self-report, which was necessary for the study design, but prone to inaccuracies. Additionally, therapists were not blind to participant condition or assessment, which could potentially bias therapist behavior. However, no significant differences were found between the treatment and waitlist conditions on any measured variable, so this is unlikely. Finally, treatment was provided by only two therapists. This resulted in more experimental control by reducing variability in therapy presentation and quality, while at the same time reducing generalizability. Of note, no significant differences were found between the therapists and any outcome variable.

Future Directions

These initial findings provide a foundation for future telepsychotherapy trichotillomania treatment. Trichotillomania remains a challenging disorder to treat. Quality treatment is difficult to find, shame and guilt often act as barriers to seeking treatment, and when treated, gains in symptom improvement are difficult to maintain. Telepsychotherapy has the potential to ameliorate each of these concerns.

As the popularity of telepsychology advances, individuals could be connected with quality therapists, trained in treating specific problems, such as trichotillomania. No longer will geographical location dictate the types of mental health services available to them. Moreover, for those with barriers to seeking treatment, telepsychology offers advantages over traditional face-to-face therapy. Individuals who avoid treatment due to difficult internal experiences such as shame, guilt, or anxiety may benefit from therapy that can be provided in their home. Furthermore, in-home treatment is convenient and may better serve time-constrained individuals or those without sufficient resources to travel to a clinic.

The telepsychology format is also well-suited to take advantage of modern technology that could potentially improve services and better maintain treatment gains. The current study only scraped the surface on this potential using a smartphone application that prompted participants to track daily behaviors of interest, such as number of hairs pulled, number of urges experienced, and values directed behavior. This simple tracking could be expanded upon and better tailored to individual clients to track behaviors specific to their concerns. Additionally, behavioral commitments made in session could be tracked and reported to a therapist as progress is made between sessions.

The use of these types of tools could also be extended following the conclusion of treatment and potentially aid in maintaining treatment gains. For example, therapists could maintain access to behaviors tracked and reported by clients following treatment. They could then occasionally contact clients to retrain or shape skills as needed. Modern technology provides the opportunity to rethink traditional treatment conventions, offering more individualized services to more people. Future research should explore this potential and expand on the foundation provided by this and other telepsychology-related research.

References

- Albers, C., & Lakens, D. (2017). Biased sample size estimates in a-priori power analysis due to the choice of the effect size index and follow-up bias. *Journal of Experimental Social Psychology*.
- Alcañiz, M., Botella, C., Baños, R., Perpiñá, C., Rey, B., Lozano, J. A., . . . Gil, J. A. (2003). Internet-based telehealth system for the treatment of agoraphobia. *CyberPsychology & Behavior*, 6(4), 355-358.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR* (4th ed.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™* (5th ed.). Arlington, VA, US: American Psychiatric Publishing, Inc.
- Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The Experience of Shame Scale. *British Journal of Clinical Psychology*, 41(1), 29-42.
- Association, A. P. (2013). *The Diagnostic and Statistical Manual of Mental Disorders: DSM 5*: bookpointUS.
- Attkisson, C. C., & Zwick, R. (1982). The Client Satisfaction Questionnaire: Psychometric properties and correlations with service utilization and psychotherapy outcome. *Evaluation and program planning*, 5(3), 233-237. doi: 10.1016/0149-7189(82)90074-X

- Azrin, N. H., & Nunn, R. G. (1973). Habit-reversal: A method of eliminating nervous habits and tics. *Behaviour Research and Therapy*, 11(4), 619-628. doi: 10.1016/0005-7967(73)90119-8
- Barnett, J. E., & Scheetz, K. (2003). Technological advances and telehealth: Ethics, law, and the practice of psychotherapy. *Psychotherapy: Theory, Research, Practice, Training*, 40(1-2), 86.
- Bate, K. S., Malouff, J. M., Thorsteinsson, E. T., & Bhullar, N. (2011). The efficacy of habit reversal therapy for tics, habit disorders, and stuttering: A meta-analytic review. *Clinical Psychology Review*, 31(5), 865-871. doi: 10.1016/j.cpr.2011.03.013
- Bates, D., Maechler, M., Bolker, B., & Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, 67(1), 1–48.
- Bloch, M. H., Landeros-Weisenberger, A., Dombrowski, P., Kelmendi, B., Wegner, R., Nudel, J., . . . Coric, V. (2007). Systematic review: pharmacological and behavioral treatment for trichotillomania. *Biological Psychiatry*, 62(8), 839-846.
- Bloch, M. H., Panza, K. E., Grant, J. E., Pittenger, C., & Leckman, J. F. (2013). N-Acetylcysteine in the treatment of pediatric trichotillomania: a randomized, double-blind, placebo-controlled add-on trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(3), 231-240.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42(4), 676-688.

- Bouwer, C., & Stein, D. J. (1998). Trichobezoars in trichotillomania: case report and literature overview. *Psychosomatic medicine*, 60(5), 658-660.
- Burckhardt, C. S., & Anderson, K. L. (2003). The Quality of Life Scale (QOLS): reliability, validity, and utilization. *Health and quality of life outcomes*, 1(1), 60. doi: 10.1186/1477-7525-1-60
- Burckhardt, C. S., Anderson, K. L., Archenholtz, B., & Hägg, O. (2003). The Flanagan Quality of Life Scale: Evidence of Construct Validity. *Health and quality of life outcomes*, 1(1). doi: 10.1186/1477-7525-1-59
- Burckhardt, C. S., Woods, S. L., Schultz, A. A., & Ziebarth, D. M. (1989). Quality of life of adults with chronic illness: A psychometric study. *Research in Nursing & Health*, 12(6), 347-354. doi: 10.1002/nur.4770120604
- Capriotti, M. R., Ely, L. J., Snorrason, I., & Woods, D. W. (2015). Acceptance-Enhanced Behavior Therapy for Excoriation (Skin-Picking) Disorder in Adults: A Clinical Case Series. *Cognitive and Behavioral Practice*, 22(2), 230-239. doi: <http://dx.doi.org/10.1016/j.cbpra.2014.01.008>
- Chamberlain, S., Menzies, L., Sahakian, B., & Fineberg, N. (2007). Lifting the veil on trichotillomania. *American Journal of Psychiatry*, 164(4), 568-574.
- Chamberlain, S. R., Odlaug, B. L., Boulougouris, V., Fineberg, N. A., & Grant, J. E. (2009). Trichotillomania: Neurobiology and treatment. *Neuroscience & Biobehavioral Reviews*, 33(6), 831-842.
- Christenson, G. A., Mackenzie, T. B., & Mitchell, J. E. (1991a). Characteristics of 60 adult hair pullers. *The American Journal of Psychiatry*.

- Christenson, G. A., MacKenzie, T. B., & Mitchell, J. E. (1994). Adult Men and Women With Trichotillomania: A Comparison of Male and Female Characteristics. *Psychosomatics*, 35(2), 142-149.
- Christenson, G. A., Pyle, R. L., & Mitchell, J. E. (1991b). Estimated lifetime prevalence of trichotillomania in college students. *Journal of Clinical Psychiatry*, 52(10), 415-417.
- Crosby, J. M., Dehlin, J. P., Mitchell, P. R., & Twohig, M. P. (2012). Acceptance and commitment therapy and habit reversal training for the treatment of trichotillomania. *Cognitive and Behavioral Practice*, 19(4), 595-605.
- Crosby, J. M., & Twohig, M. P. (2016). Acceptance and Commitment Therapy for Problematic Internet Pornography Use: A Randomized Trial. *Behavior Therapy*, 47(3), 355-366.
- Dougherty, D. D., Loh, R., Jenike, M. A., & Keuthen, N. J. (2006). Single modality versus dual modality treatment for trichotillomania: sertraline, behavioral therapy, or both? *The Journal of clinical psychiatry*, 67(7), 1086-1092.
- Dubose, J. A., & Spirrison, C. L. (2006). Hair Pulling in a Diverse College Sample. *North American Journal of Psychology*, 8(3).
- Duke, D. C., Keeley, M. L., Geffken, G. R., & Storch, E. A. (2010). Trichotillomania: A current review. *Clinical Psychology Review*, 30(2), 181-193.
- Falissard, B. (2012). Various procedures used in psychometry. <https://CRAN.R-project.org/package=psy>.
- Fine, K. M., Walther, M. R., Joseph, J. M., Robinson, J., Ricketts, E. J., Bowe, W. E., & Woods, D. W. (2012). Acceptance-Enhanced Behavior Therapy for

- Trichotillomania in Adolescents. *Cognitive and Behavioral Practice*, 19(3), 463-471.
- Flessner, C. A., Busch, A. M., Heideman, P. W., & Woods, D. W. (2008a). Acceptance-enhanced behavior therapy (AEBT) for trichotillomania and chronic skin picking: Exploring the effects of component sequencing. *Behavior Modification*, 32(5), 579-594. doi: 10.1177/0145445507313800
- Flessner, C. A., Conelea, C. A., Woods, D. W., Franklin, M. E., Keuthen, N. J., & Cashin, S. E. (2008b). Styles of pulling in trichotillomania: exploring differences in symptom severity, phenomenology, and functional impact. *Behaviour Research and Therapy*, 46(3), 345-357.
- Flessner, C. A., Woods, D. W., Franklin, M. E., Cashin, S. E., & Keuthen, N. J. (2008c). The Milwaukee Inventory for Subtypes of Trichotillomania-Adult Version (MIST-A): Development of an instrument for the assessment of 'focused' and 'automatic' hair pulling. *Journal of Psychopathology and Behavioral Assessment*, 30(1), 20-30. doi: 10.1007/s10862-007-9073-x
- Fox, J., & Weisberg, S. (2011). *An {R} companion to applied regression* (2nd ed.). Thousand Oaks, CA: Sage.
- Franklin, M. E., Best, S. H., Wilson, M. A., Loew, B., & Compton, S. N. (2011). Habit reversal training and acceptance and commitment therapy for tourette syndrome: a pilot project. *Journal of Developmental and Physical Disabilities*, 23(1), 49-60. doi: 10.1007/s10882-010-9221-1
- Frueh, B. C., Henderson, S., & Myrick, H. (2005). Telehealth service delivery for persons with alcoholism. *Journal of Telemedicine and Telecare*, 11(7), 372-375.

- Grady, B. J., & Melcer, T. (2005). A retrospective evaluation of telemental healthcare services for remote military populations. *Telemedicine Journal & E-Health*, 11(5), 551-558.
- Grant, J. E., & Chamberlain, S. R. (2016). Trichotillomania. *American Journal of Psychiatry*, 173(9), 868-874.
- Grant, J. E., Odlaug, B. L., Schreiber, L. R., & Kim, S. W. (2014). The opiate antagonist, naltrexone, in the treatment of trichotillomania: results of a double-blind, placebo-controlled study. *Journal of Clinical Psychopharmacology*, 34(1), 134-138.
- Grant, J. E., Redden, S. A., Medeiros, G. C., Odlaug, B. L., Curley, E. E., Tavares, H., & Keuthen, N. J. (2017). Trichotillomania and its clinical relationship to depression and anxiety. *International journal of psychiatry in clinical practice*, 1-5.
- Gros, D. F., Morland, L. A., Greene, C. J., Acierno, R., Strachan, M., Egede, L. E., . . . Frueh, B. C. (2013). Delivery of evidence-based psychotherapy via video telehealth. *Journal of Psychopathology and Behavioral Assessment*, 35(4), 506-521.
- Gros, D. F., Yoder, M., Tuerk, P. W., Lozano, B. E., & Acierno, R. (2011). Exposure therapy for PTSD delivered to veterans via telehealth: Predictors of treatment completion and outcome and comparison to treatment delivered in person. *Behavior Therapy*, 42(2), 276-283.
- Hall, G. C. N. (2001). Psychotherapy research with ethnic minorities: empirical, ethical, and conceptual issues. *Journal of Consulting and Clinical Psychology*, 69(3), 502.
- Harley, J. (2006). Economic evaluation of a tertiary telepsychiatry service to an island. *Journal of Telemedicine and Telecare*, 12(7), 354-357.

- Hatcher, R. L., & Gillaspay, J. A. (2006). Development and validation of a revised short version of the Working Alliance Inventory. *Psychotherapy Research, 16*(1), 12-25.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and Commitment Therapy: Model, processes and outcomes. *Behaviour Research and Therapy, 44*(1), 1-25. doi: 10.1016/j.brat.2005.06.006
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., . . . McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record, 54*(4), 553-578. doi: 10.1037/h0100908
- Hedman, E., Andersson, E., Ljótsson, B., Andersson, G., Rück, C., & Lindefors, N. (2011). Cost-effectiveness of Internet-based cognitive behavior therapy vs. cognitive behavioral group therapy for social anxiety disorder: results from a randomized controlled trial. *Behaviour Research and Therapy, 49*(11), 729-736.
- Himle, M. B., Freitag, M., Walther, M., Franklin, S. A., Ely, L., & Woods, D. W. (2012). A randomized pilot trial comparing videoconference versus face-to-face delivery of behavior therapy for childhood tic disorders. *Behaviour Research and Therapy, 50*(9), 565-570.
- Himle, M. B., Olufs, E., Himle, J., Tucker, B. T. P., & Woods, D. W. (2010). Behavior therapy for tics via videoconference delivery: an initial pilot test in children. *Cognitive and Behavioral Practice, 17*(3), 329-337.
- Houghton, D. C., Capriotti, M. R., De Nadai, A. S., Compton, S. N., Twohig, M. P., Neal-Barnett, A. M., . . . Woods, D. W. (2015). Defining treatment response in

- trichotillomania: a signal detection analysis. *Journal of Anxiety Disorders*, 36, 44-51. doi: 10.1016/j.janxdis.2015.09.008
- Houghton, D. C., Compton, S. N., Twohig, M. P., Saunders, S. M., Frankli, M. E., Neal-Barnett, A. M., . . . Woods, D. W. (2014). Measuring the Role of Psychological Inflexibility in Trichotillomania *Psychiatry Research*, 1-26.
- Keuthen, N. J., O'Sullivan, R. L., Ricciardi, J. N., & Shera, D. (1995a). The Massachusetts General Hospital (MGH) Hairpulling Scale: I. Development and factor analyses. *Psychotherapy and Psychosomatics*, 64(3-4), 141-145.
- Keuthen, N. J., O'Sullivan, R. L., Ricciardi, J. N., Shera, D., Savage, C. R., Borgmann, A. S., . . . Baer, L. (1995b). The Massachusetts General Hospital (MGH) Hairpulling Scale: I. Development and factor analyses. *Psychotherapy and Psychosomatics*, 64(3-4), 141-145.
- Keuthen, N. J., Rothbaum, B. O., Falkenstein, M. J., Meunier, S., Timpano, K. R., Jenike, M. A., & Welch, S. S. (2010a). DBT-enhanced habit reversal treatment for trichotillomania: 3-and 6-month follow-up results. *Depress. Anxiety*, 28(4), 310-313.
- Keuthen, N. J., Rothbaum, B. O., Welch, S. S., Taylor, C., Falkenstein, M., Heekin, M., . . . Fama, J. (2010b). Pilot trial of dialectical behavior therapy - enhanced habit reversal for trichotillomania. *Depression and Anxiety*, 27(10), 953-959.
- Keuthen, N. J., & Sprich, S. E. (2012). Utilizing DBT skills to augment traditional CBT for trichotillomania: An adult case study. *Cognitive and Behavioral Practice*, 19(2), 372-380.

- King, R. A., Zohar, A. H., Ratzoni, G., Binder, M., Kron, S., Dycian, A., . . . Apter, A. (1995). An epidemiological study of trichotillomania in Israeli adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 34(9), 1212-1215.
- Larsen, D. L., Attkisson, C. C., Hargreaves, W. A., & Nguyen, T. D. (1979). Assessment of client/patient satisfaction: development of a general scale. *Evaluation and program planning*, 2(3), 197-207. doi: 10.1016/0149-7189(79)90094-6
- Leonard, S. (2004). The development and evaluation of a telepsychiatry service for prisoners. *Journal of Psychiatric and Mental Health Nursing*, 11(4), 461-468.
- Lerner, J., Franklin, M. E., Meadows, E. A., Hembree, E., & Foa, E. B. (1999). Effectiveness of a cognitive behavioral treatment program for trichotillomania: an uncontrolled evaluation. *Behavior Therapy*, 29(1), 157-171.
- Lichstein, K. L., Scogin, F., Thomas, S. J., DiNapoli, E. A., Dillon, H. R., & McFadden, A. (2013). Telehealth cognitive behavior therapy for co - occurring insomnia and depression symptoms in older adults. *Journal of Clinical Psychology*, 69(10), 1056-1065.
- Maheu, M. M., Pulier, M. L., McMenamin, J. P., & Posen, L. (2012a). Future of telepsychology, telehealth, and various technologies in psychological research and practice. *Professional Psychology: Research and Practice*, 43(6), 613.
- Maheu, M. M., Pulier, M. L., McMenamin, J. P., & Posen, L. (2012b). Future of telepsychology, telehealth, and various technologies in psychological research and practice. *Professional Psychology: Research and Practice*, 43(6), 613-621.

- Marcks, B. A., Wetterneck, C. T., & Woods, D. W. (2006). Investigating healthcare providers' knowledge of trichotillomania and its treatment. *Cognitive Behaviour Therapy, 35*(1), 19-27.
- McCarley, N. G., Spirrison, C. L., & Ceminsky, J. L. (2002). Hair pulling behavior reported by African American and non-African American college students. *Journal of Psychopathology and Behavioral Assessment, 24*(3), 139-144.
- Mitchell, J. E., & Callies, A. L. (1991). A Placebo-Controlled, Double-Blind Crossover Study of Fluoxetine in Trichotillomania. *Am J Psychiatry, 148*(1), 1567.
- Munder, T., Wilmers, F., Leonhart, R., Linster, H. W., & Barth, J. (2010). Working Alliance Inventory - Short Revised (WAI - SR): psychometric properties in outpatients and inpatients. *Clinical Psychology & Psychotherapy, 17*(3), 231-239.
- Neal, A. M., & Wilson, M. L. (1989). The role of skin color and features in the Black community: Implications for Black women and therapy. *Clinical Psychology Review, 9*(3), 323-333.
- Neal-Barnett, A., Flessner, C., Franklin, M. E., Woods, D. W., Keuthen, N. J., & Stein, D. J. (2010). Ethnic differences in trichotillomania: Phenomenology, interference, impairment, and treatment efficacy. *Journal of Anxiety Disorders, 24*(6), 553-558.
- Neal-Barnett, A., & Stadulis, R. (2006). Affective states and racial identity among African-American women with trichotillomania. *Journal of the National Medical Association, 98*(5), 753.
- Neal-Barnett, A. M., Ward-Brown, B. J., Mitchell, M., & Krownapple, M. (2000). Hair-pulling in African Americans—Only your hairdresser knows for sure: An exploratory study. *Cultural Diversity and Ethnic Minority Psychology, 6*(4), 352.

- Neal - Barnett, A., Statom, D., & Stadulis, R. (2011). Trichotillomania symptoms in African American women: are they related to anxiety and culture? *CNS neuroscience & therapeutics*, 17(4), 207-213.
- Nelson, E.-L., Bui, T. N., & Velasquez, S. E. (2011). Telepsychology: Research and practice overview. *Child and Adolescent Psychiatric Clinics of North America*, 20(1), 67-79.
- Ninan, P. T., Rothbaum, B. O., Marsteller, F. A., Knight, B. T., & Eccard, M. B. (2000). A placebo-controlled trial of cognitive-behavioral therapy and clomipramine in trichotillomania. *The Journal of clinical psychiatry*, 61(1), 47-50.
- O'Sullivan, R., Keuthen, N., Hayday, C., Ricciardi, J., Buttolph, M., Jenike, M., & Baer, L. (1995). The Massachusetts General Hospital (MGH) Hairpulling Scale: 2. reliability and validity. *Psychotherapy and Psychosomatics*(64), 146-148.
- O'Sullivan, R. L., Keuthen, N. J., Jenike, M. A., & Gumley, G. (1996). Trichotillomania and carpal tunnel syndrome. *The Journal of clinical psychiatry*, 57(4), 174-174.
- Odlaug, B. L., & Grant, J. E. (2010). Impulse-control disorders in a college sample: results from the self-administered Minnesota Impulse Disorders Interview (MIDI). *Primary care companion to the Journal of clinical psychiatry*, 12(2).
- Odlaug, B. L., Kim, S. W., & Grant, J. E. (2010). Quality of life and clinical severity in pathological skin picking and trichotillomania. *Journal of Anxiety Disorders*, 24(8), 823-829.
- Penzel, F. (2003). *The Hair-Pulling Problem: A Complete Guide to Trichotillomania: A Complete Guide to Trichotillomania*: Oxford University Press.

- R Development Core Team. (2016). R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>
- Rabinowitz, T., Murphy, K. M., Amour, J. L., Ricci, M. A., Caputo, M. P., & Newhouse, P. A. (2010). Benefits of a telepsychiatry consultation service for rural nursing home residents. *Telemedicine and e-Health*, 16(1), 34-40.
- Ragusea, A. S., & VandeCreek, L. (2003). *Suggestions for the ethical practice of online psychotherapy* (Vol. 40): Educational Publishing Foundation.
- Rangaswami, K. (1997). Management of a case of trichotillomania by cognitive behaviour therapy. *Indian Journal of Clinical Psychology*, 24, 89-92.
- Revelle, W. (2017). psych: Procedures for personality and psychological research., from <https://CRAN.R-project.org/package=psych>
- Rotondi, A. J., Haas, G. L., Anderson, C. M., Newhill, C. E., Spring, M. B., Ganguli, R., . . . Rosenstock, J. B. (2005). A Clinical Trial to Test the Feasibility of a Telehealth Psychoeducational Intervention for Persons With Schizophrenia and Their Families: Intervention and 3-Month Findings. *Rehabilitation Psychology*, 50(4), 325-336.
- Savin, D., Garry, M. T., Zuccaro, P., & Novins, D. (2006). Telepsychiatry for treating rural American Indian Youth. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(4), 484-488.
- Schlosser, S., Black, D. W., Blum, N., & Goldstein, R. B. (1994). The demography, phenomenology, and family history of 22 persons with compulsive hair pulling. *Annals of Clinical Psychiatry*, 6(3), 147-152.

- Selker, R., Love, J., & Dropmann, D. (2017). jmv: The 'jamovi' Analyses. from <https://CRAN.R-project.org/package=jmv>
- Shareh, H. (2017). A Preliminary Investigation of Metacognitive Therapy and Habit Reversal as a Treatment for Trichotillomania. *Behavioural and cognitive psychotherapy*, 1-20.
- Sharenow, E. L., Fuqua, R. W., & Miltenberger, R. G. (1989). The treatment of muscle tics with dissimilar competing response practice. *Journal of Applied Behavior Analysis*, 22(1), 35-42.
- Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Amorim, P., Janavs, J., Weiller, E., . . . Dunbar, G. C. (1998). The Mini-International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *The Journal of clinical psychiatry*, 59 (Suppl 20), 22-33.
- Shingleton, R. M., Richards, L. K., & Thompson-Brenner, H. (2013). Using technology within the treatment of eating disorders: A clinical practice review. *Psychotherapy*, 50(4), 576-582.
- Siddiqui, E. U., Naeem, S. S., Naqvi, H., & Ahmed, B. (2012). Prevalence of body-focused repetitive behaviors in three large medical colleges of Karachi: a cross-sectional study. *BMC research notes*, 5(1), 614.
- Singh, S., Wetterneck, C. T., Williams, M. T., & Knott, L. E. (2016). The Role of Shame and Symptom Severity on Quality of Life in Obsessive-Compulsive and Related Disorders. *Journal of Obsessive-Compulsive and Related Disorders*. doi: <http://dx.doi.org/10.1016/j.jocrd.2016.08.004>

- Smout, M., Davies, M., Burns, N., & Christie, A. (2014). Development of the Valuing Questionnaire (VQ). *Journal of Contextual Behavioral Science*, 3(3), 164-172.
- Sood, S., Mbarika, V., Jugoo, S., Dookhy, R., Doarn, C. R., Prakash, N., & Merrell, R. C. (2007). What is telemedicine? A collection of 104 peer-reviewed perspectives and theoretical underpinnings. *Telemedicine and e-Health*, 13(5), 573-590.
- Stanley, M. A., Borden, J. W., Bell, G. E., & Wagner, A. L. (1994). Nonclinical hair pulling: phenomenology and related psychopathology. *Journal of Anxiety Disorders*, 8(2), 119-130.
- Stemberger, R. M. T., Thomas, A. M., Mansueto, C. S., & Carter, J. G. (2000). Personal toll of trichotillomania: Behavioral and interpersonal sequelae. *Journal of Anxiety Disorders*, 14(1), 97-104.
- Streichenwein, S. M., & Thornby, J. I. (1995). A Long-Term, Double-Blind, Placebo-Controlled Crossover Trial. *Am J Psychiatry*, 152, 52.
- Swedo, S. E., Leonard, H. L., Rapoport, J. L., Lenane, M. C., Goldberger, E. L., & Cheslow, D. L. (1989). A double-blind comparison of clomipramine and desipramine in the treatment of trichotillomania (hair pulling). *New England Journal of Medicine*, 321(8), 497-501.
- Trott, P., & Blignault, I. (1998). Cost evaluation of a telepsychiatry service in northern Queensland. *Journal of Telemedicine and Telecare*, 4(suppl 1), 66-68.
- Twohig, M., & Crosby, J. (2010a). Acceptance and Commitment Therapy as a Treatment for Problematic Internet Pornography Viewing. *Behavior Therapy*, 41(3), 285-295.

- Twohig, M. P., & Crosby, J. M. (2010b). Acceptance and Commitment Therapy as a Treatment for Problematic Internet Pornography Viewing. *Behavior Therapy*, 1-11.
- Twohig, M. P., Hayes, S. C., & Masuda, A. (2006). A preliminary investigation of acceptance and commitment therapy as a treatment for chronic skin picking. *Behaviour Research and Therapy*, 44(10), 1513-1522.
- Twohig, M. P., & Woods, D. W. (2004). A preliminary investigation of acceptance and commitment therapy and habit reversal as a treatment for trichotillomania. *Behavior Therapy*, 35(4), 803-820.
- United States Census Beureau. (2016). Retrieved 09/2017, from <https://www.census.gov/quickfacts/UT>
- Van Ameringen, M., Mancini, C., Patterson, B., Bennett, M., & Oakman, J. (2010). A randomized, double-blind, placebo-controlled trial of olanzapine in the treatment of trichotillomania. *The Journal of clinical psychiatry*, 71(10), 1336-1343.
- van Minnen, A., Hoogduin, K. A., Keijsers, G. P., Hellenbrand, I., & Hendriks, G.-J. (2003). Treatment of trichotillomania with behavioral therapy or fluoxetine: a randomized, waiting-list controlled study. *Archives of General Psychiatry*, 60(5), 517-522.
- Walther, M. R., Ricketts, E. J., Conelea, C. A., & Woods, D. W. (2010). Recent advances in the understanding and treatment of trichotillomania. *Journal of Cognitive Psychotherapy*, 24(1), 46-64.
- Weingarden, H., & Renshaw, K. D. (2015). Shame in the obsessive compulsive related disorders: a conceptual review. *Journal of Affective Disorders*, 171, 74-84.

- Welch, S. S., & Kim, J. (2012). DBT-enhanced cognitive behavioral therapy for adolescent trichotillomania: An adolescent case study. *Cognitive and Behavioral Practice, 19*(3), 483-493.
- Wetterneck, C. T., Woods, D. W., Norberg, M. M., & Begotka, A. M. (2006). The social and economic impact of trichotillomania: Results from two nonreferred samples. *Behavioral Interventions, 21*(2), 97-109.
- Wickham, H. (2017). tidyverse: Easily install and load 'Tidyverse' packages. R package version 1.1.1., from <http://CRAN.R-project.org/package=tidyverse>
- Woods, D. W., Flessner, C. A., Franklin, M. E., Keuthen, N. J., Goodwin, R. D., Stein, D. J., & Walther, M. R. (2006a). The Trichotillomania Impact Project (TIP): exploring phenomenology, functional impairment, and treatment utilization. *Journal of Clinical Psychiatry, 67*(12), 1877.
- Woods, D. W., Flessner, C. A., Franklin, M. E., Wetterneck, C. T., Walther, M. R., Anderson, E. R., & Cardona, D. (2006b). Understanding and Treating Trichotillomania: What We Know and What We Don't Know. *Psychiatric Clinics of North America, 29*(2), 487-501.
- Woods, D. W., Murray, L. K., Fuqua, R. W., Seif, T. A., Boyer, L. J., & Siah, A. (1999). Comparing the effectiveness of similar and dissimilar competing responses in evaluating the habit reversal treatment for oral–digital habits in children. *Journal of Behavior Therapy and Experimental Psychiatry, 30*(4), 289-300.
- Woods, D. W., & Twohig. (2008a). *Trichotillomania an ACT-enhanced behavior therapy approach: therapist guide*. Oxford; New York: Oxford University Press.

- Woods, D. W., & Twohig, M. P. (2008b). *Trichotillomania: An ACT-enhanced behavior therapy approach therapist guide*. Oxford University Press.
- Woods, D. W., Wetterneck, C. T., & Flessner, C. A. (2006c). A controlled evaluation of acceptance and commitment therapy plus habit reversal for trichotillomania. *Behaviour Research and Therapy*, 44(5), 639-656.
- Zaylor, C., Whitten, P., & Kingsley, C. (2000). Telemedicine services to a county jail. *Journal of Telemedicine and Telecare*, 6(suppl 1), 93-95.

Appendices

Appendix A
Recruitment Flier

Research Study

The Psychology Department at Utah State University
is seeking individuals that struggle with...

Trichotillomania or problematic hair pulling

Do you pull out your hair and have been unable to stop?
Is it difficult to control your pulling?
Has it gotten in the way of your life?

If you struggle with this problem, you may be eligible for participation in a study assessing the effectiveness of a psychological intervention provided over the internet (e.g. Skype). Participation requires no travel as the intervention will be provided in your home over the internet. The study will involve 12 hours of your time over six to nine months. There will be no compensation for participation, but involvement in the psychological intervention will be provided free of charge. If you are interested or have questions, please contact:

Eric Lee
(435) 797-8303
eric.lee@aggiemail.usu.edu

or

Michael Twohig
michael.twohig@usu.edu

Appendix B

Phone Screening Form

TRICHOTILLOMANIA / TELEPSYCHOLOGY
PHONE SCREENING FORM

Date of Contact: _____

Person completing phone screen: _____

Name: _____

Primary Phone: _____ (ok to LVM? No/Yes)

Alternative Phone: _____ (ok to LVM? No/Yes)

Email: _____ (ok to email? No/Yes)

How old are you? (must be 18 or older) _____

Where do you live? (must reside in Utah) _____

| Yes | No | |
|-----|----|--|
| | | Are you comfortable receiving treatment in English? |
| | | Do you have access to a computer, tablet, or smart phone that can be used in a private location? |
| | | Do you have internet access? |
| | | Do you recurrently pull out your hair |
| | | Have you been unable to stop pulling despite attempts to do so? |
| | | Has this caused significant distress or impairment in your life? |
| | | Are you currently receiving psychotherapy? |
| | | Have you started or changed psychotropic medication in the past 30 days? |
| | | Are you planning to start or change psychotropic medication over the next nine months? |

If eligible:*(Explain study)*

- *Treatment and waitlist groups*
- *Intake plus 10 weekly sessions*
- *Telepsychology*
- *Services are free of charge*

*What questions do you have about the study?**It seems like this study is a good fit for you. Would you like to schedule an initial intake session?*

Date & Time: _____

Reminder contact desired?: _____

What format?: Email

Text message – Primary Phone / Alt. Phone

The intake session will be done over the internet using a program called VSee. I will email you step by step instructions on how to set this up on your computer/tablet/phone. I will also be available to walk you through any problems that you encounter with the set up over the phone.

If ineligible:

Unfortunately you are not eligible to participate in this study. Would you like any referrals at this time? Thank you for your time.

Reason for ineligibility: _____

Appendix C
Informed Consent



Department of Psychology
2810 Old Main Hill
Logan, UT 84322
(435) 797-1402

Informed Consent

Telepsychotherapy for the Treatment of Trichotillomania: A Randomized Controlled Trial

Introduction/ Purpose Professor Michael P. Twohig, Ph.D. and Eric Lee in the Department of Psychology at Utah State University are conducting a study to find out more about the treatment of Trichotillomania. The goal of this study is to look at providing therapy for trichotillomania over the internet using video communication software (e.g., Skype). The therapy sessions will be very similar to face-to-face therapy, such as talking about your problem and doing exercises aimed at helping you gain greater control over this problem, except it will be done online. There will be no medication or other devices used in this treatment.

You have been asked to take part in this study because you are at least 18 years old and have shown an interest in receiving treatment for trichotillomania. There will be up to 30 participants enrolled in this study.

Procedures If you agree to participate, the following will happen:

- 1) You will participate in a pretreatment interview over the internet and be asked to complete a short series of online surveys to help us understand your problem and to track how well the treatment works.
- 2) You will be randomly placed in a treatment or wait list group. The treatment group will track their hair pulling for one week and then begin treatment immediately. The wait list group will track their hair pulling for one week and will then wait 12 weeks to begin treatment.
- 3) When treatment begins, you will be asked to attend 10 weekly, online sessions (1 hour each) of therapy. Therapy will be about the way that you handle the urges to hair pull and will end with some exercises aimed at helping you stop pulling. You will be asked to monitor hair pulling and record results to a provided secure website each day during treatment. You will be asked to complete a short online survey during each therapy session to help monitor progress.
- 4) All of the treatment sessions will be recorded by video to allow us to make sure that the treatment is being done well. These videos will be stored on hard drives in a locked filing cabinet which only the investigators will have access to. Only the investigators will ever view these tapes. These recordings will be securely deleted when the investigation is completed.

5) If you immediately receive treatment you will be asked to complete the same assessments at your last treatment session that you completed the first time we met. If you are in the waitlist group we would like you to complete the packet after waiting 12 weeks and again after treatment.

6) You will be asked to complete these online assessments again, 12 weeks after you complete the treatment. All data identifiers will be destroyed when the study is completed.

Alternative Procedures Instead of participating in this research, an alternative for you to consider would be: receiving mental health services from a psychologist or psychiatrist, reading a self-help book on this topic, or from the website stoppulling.com or if you wish to explore other treatment options such as medical or other forms of therapy. We can provide referrals.

New Findings: You will be told of any important new findings (either good or bad), such as changes in the risks or benefits of being part of this study, or if there are different options to participating in this study that might cause you to change your mind about continuing in the study. If we learn new things about the study that are useful to you, or if the study changes at any time, you will be informed and we will ask you to complete a new consent form that will include the new information.

Risks: Every effort will be made to keep physical, medical, psychological, social, legal, or other risks as low as possible. You could possibly feel mild discomfort from answering some of the questions or discussing your problem. The researchers will strive to minimize potential risks by keeping you well informed about the therapy process and debriefing as necessary. You will also be informed of alternative procedures or courses of treatment, if any, that might be advantageous for you. Further, you are free to withdraw your participation at any time or to not do any part of the study that you choose not to. There are no penalties for stopping or choosing to not do any part of the study. If you withdraw from the study or no longer attend scheduled sessions you will be asked to complete a post-treatment assessment at your discretion. All data that you provide and have previously provided will be de-identified, securely stored, and used in the study. All digital data will be collected and stored on secure servers. Video recordings of sessions and other physical data will be secured in a locked file cabinet in the Center for Clinical Research when not in use. Finally, while all precautions are being taken to keep information collected in this study confidential, the possibility exists that confidentiality may fail or have to be broken and information collected in this study could be seen by individuals not involved in this study.

Benefits There may or may not be any direct benefit to you from these procedures. The most likely benefit from this participating in this study is a reduction in your hair pulling and a better understanding of trichotillomania. The investigator may learn more about ways to appropriately treat trichotillomania.

Explanation & offer to answer questions: Professor Twohig or Eric Lee, has explained this research study to you and answered your questions. If you have other questions or

research-related problems, you may reach Professor Michael P. Twohig at (435) 797-1402.

Voluntary nature of participation and right to withdraw without consequence

Participation in research is completely up to you. You may stop at any time you want, or you may skip any part of the study that you don't want to do. Not completing part of the study will not affect your ability to participate in the rest of the study.

Confidentiality Research records will be kept confidential, consistent with federal and state regulations. Only the investigators and research assistants will have access to the data which will be kept in a locked file cabinet in a locked room. All information collected in this study will be kept until the study is completed and then destroyed.

Consistent with ethical guidelines for health professionals, confidentiality may be breached in circumstances where either you or another person are in physical danger, or knowledge of harm, particularly children or the elderly, is relayed to the therapist. In these situations, reports will be made to the appropriate institutions or people.

IRB Approval Statement The Institutional Review Board (IRB) for the protection of human participants at USU has reviewed and approved this research study. If you have any pertinent questions or concerns about your rights or think the research may have harmed you, you may contact the IRB Director at (435) 797-0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

Investigator Statement "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Michael P. Twohig, Ph.D.
Principal Investigator
(435) 797-1402
michael.twohig@usu.edu

Eric B. Lee, M.A.
Graduate Student Researcher
(435) 797-8303
eric.lee@aggiemail.usu.edu

Appendix D

Measures

Background Information

1. How old are you? _____

2. What is your marital status?

- 1 = single
- 2 = married
- 3 = divorced
- 4 = separated
- 5 = remarried
- 6 = widowed
- 7 = cohabitating

3. What was your sex at birth?

- 1 = female
- 2 = male

4. Do you consider yourself to be transgender?

- 1 = Yes, transgender, male to female
- 2 = Yes, transgender, female to male
- 3 = Yes, transgender
- 4 = No

5. What is your sexual orientation?

- 1 = heterosexual or straight
- 2 = gay or lesbian
- 3 = bisexual
- 4 = other

6. What was the highest grade of school you completed?

- | | | |
|---|-----------------|---------------|
| Elementary | 1 2 3 4 5 6 7 8 | |
| High School | 9 10 11 12 GED | |
| Post High School (vocational/technical) | 1 2 3 4 | |
| College | 1 2 3 4 | degree? _____ |
| Graduate/Professional | 5 6 7 8 | degree? _____ |

7. Are you Hispanic or Latino?

- 1 = No not Hispanic or Latino
- 2 = Yes, Hispanic or Latino

8. How would you describe yourself?
(Choose one or more from the following racial groups)

- 1 = American Indian or Alaska Native
- 2 = Asian
- 3 = Black or African American
- 4 = Native Hawaiian or Other Pacific Islander
- 5 = White or European American

9. What is your monthly household gross income?

- 1 = less than \$1,000
- 2 = \$1,000–\$1,999
- 3 = \$2,000–\$2,999
- 4 = \$3,000–\$3,999
- 5 = \$4,000–\$4,999
- 6 = \$5,000–\$5,999
- 7 = \$6,000–\$6,999
- 8 = \$7,000–\$7,999
- 9 = \$8,000–\$8,999
- 10 = \$9,000–\$9,999
- 11 = more than \$10,000

10. How long have you been pulling your hair out?

11. How long has this been a problem for you?

12. Have you ever sought treatment or tried other procedures? If yes, what did you try?

13. Have you ever been diagnosed with any psychological disorders? If yes, please list.

14. Are you on any psychotropic medications or have you been on any in the last 6 months? If yes please list and tell me when you started your most recent dosage.

15. Do you ever ingest your hair after pulling it out?

16. Would you be seeking services for your hair pulling if it was not provided over the internet?

17. Do you have any circumstances that would inhibit you from attending face-to-face therapy?

- Busy schedule

- Treatment for trichotillomania is not provided near me

- Lack of money (for example: gas, bus fare)

- Lack of resources (for example: car, ride from friend or family)

- Physical disability

- Discomfort from leaving your home

 - Leaving my home:

 - Frightens me (anxiety)

 - Is too much effort (depression)

 - Makes me feel judged by others (shame)

18. For what reasons are you participating in this study?

- No cost therapy

- I prefer receiving therapy over the internet

- I have been unable to find therapist near me who understands trichotillomania

Massachusetts General Hospital Hair Pulling Scale

Instructions: For each question, pick the one statement in that group which best describes your behaviors and/or feelings over the past week. If you have been having ups and downs, try to estimate an average for the past week. Be sure to read all of the statements in each group before making your choice.

For the next three questions, rate only the urges to pull your hair.

1. Frequency of urges. On an average day, how often did you feel the urge to pull your hair?

- 0 This week I felt no urges to pull my hair.
- 1 This week I felt an occasional urge to pull my hair.
- 2 This week I felt an urge to pull my hair often.
- 3 This week I felt an urge to pull my hair very often.
- 4 This week I felt near constant urges to pull my hair.

2. Intensity of urges. On an average day, how intense or 'strong' were the urges to pull your hair?

- 0 This week I did not feel any urges to pull my hair
- 1 This week I felt mild urges to pull my hair
- 2 This week I felt moderate urges to pull my hair
- 3 This week I felt severe urges to pull my hair.
- 4 This week I felt extreme urges to pull my hair.

3. Ability to control the urges. On an average day, how much control do you have over the urges to pull your hair?

- 0 This week I could always control the urges, or I did not feel urges to pull my hair.
- 1 This week I was able to distract myself from the urges to pull my hair most of the time.
- 2 This week I was able to distract myself from the urges to pull my hair some of the time.
- 3 This week I was able to distract myself from the urges to pull my hair rarely.
- 4 This week I was never able to distract myself from the urges to pull my hair.

For the next three questions, rate only the actual hairpulling

4. Frequency of hairpulling. On an average day, how often did you actually pull your hair?

- 0 This week I did not pull my hair.
- 1 This week I pulled my hair occasionally.
- 2 This week I pulled my hair often.

- 3 This week I pulled my hair very often.
 - 4 This week I pulled my hair so often it felt like I was always doing it.
5. Attempts to resist hairpulling. On an average day, how often did you make an attempt to stop yourself from actually pulling your hair?
- 0 This week I felt no urges to pull my hair.
 - 1 This week I tried to resist the urge to pull my hair almost all of the time.
 - 2 This week I tried to resist the urge to pull my hair some of the time.
 - 3 This week I tried to resist the urge to pull my hair rarely.
 - 4 This week I never tried to resist the urge to pull my hair.
6. Control over hairpulling. On an average day, how often were you successful at actually stopping yourself from pulling your hair?
- 0 This week I did not pull my hair.
 - 1 This week I was able to resist pulling my hair almost all of the time.
 - 2 This week I was able to resist pulling my hair most of the time.
 - 3 This week I was able to resist pulling my hair some of the time.
 - 4 This week I was rarely able to resist pulling my hair.

For the last question, rate the consequences of your hairpulling.

7. Associated distress. Hairpulling can make some people feel moody, 'on edge', or sad. During the past week, how uncomfortable did your hairpulling make you feel?
- 0 This week I did not feel uncomfortable about my hairpulling.
 - 1 This week I felt vaguely uncomfortable about my hairpulling.
 - 2 This week I felt noticeably uncomfortable about my hairpulling.
 - 3 This week I felt significantly uncomfortable about my hairpulling.
 - 4 This week I felt intensely uncomfortable about my hairpulling.

Acceptance and Action Questionnaire for Trichotillomania (AAQ-4TTM)

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following scale to make your choice.

| | | | | | | |
|-------|-------------|--------|-----------|------------|-------------|--------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| never | very seldom | seldom | sometimes | frequently | almost | always |
| true | true | true | true | true | always true | true |

- _____ 1. I am able to not pull when the urge to pull is strong.
- _____ 2. I often catch myself daydreaming about my pulling and what I would do differently next time I feel the urge to pull.
- _____ 3. When I feel the urge to pull, I am unable to take care of my responsibilities.
- _____ 4. I rarely worry about getting my urges to pull under control.
- _____ 5. I'm not afraid of my urges to pull.
- _____ 6. When I evaluate my urges to pull negatively, I usually recognize that this is just a reaction, not an objective fact.
- _____ 7. When I compare myself to other people, it seems that most of them are handling their lives better than I do.
- _____ 8. Urges to pull are bad.
- _____ 9. If I could magically remove all my painful experiences related to pulling, I would do so.

Quality of Life Scale

Please read each item and circle the number that best describes how satisfied you are at this time. Please answer each item even if you do not currently participate in an activity or have a relationship. You can be satisfied or dissatisfied with not doing the activity or having the relationship.

1. Material comforts, home, food, conveniences, financial security

| | | | | | | |
|-----------|---------|------------------|-------|---------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

2. Health - being physically fit and vigorous

| | | | | | | |
|-----------|---------|------------------|-------|---------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

3. Relationships with parents, siblings & other relatives - communicating, visiting, helping

| | | | | | | |
|-----------|---------|------------------|-------|---------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

4. Having and rearing children

| | | | | | | |
|-----------|---------|------------------|-------|---------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

5. Close relationship with spouse or significant other?

| | | | | | | |
|-----------|---------|------------------|-------|---------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

6. Close friends

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

7. Helping and encouraging others, volunteering, giving advice

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

8. Participating in organizations and public affairs

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

9. Learning- attending school, improving understanding, getting additional knowledge

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

10. Understanding yourself – knowing your assets and limitations – knowing what life is about

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

11. Work – job or in home

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

12. Expressing yourself creatively

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

13. Socializing – meeting other people, doing things, parties, etc.

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

14. Reading, listening to music or observing entertainment

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

15. Participating in active recreation

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

16. Independence, doing for yourself

| | | | | | | |
|-----------|---------|---------------------|-------|------------------------|---------|----------|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Delighted | Pleased | Mostly Satisfied | Mixed | Mostly Dissatisfied | Unhappy | Terrible |

Appendix: Experience of Shame Scale

Everybody at times can feel embarrassed, self-conscious or ashamed. These questions are about such feelings if they have occurred **at any time in the past year**. There are no 'right' or 'wrong' answers. Please indicate the response which applies to you with a tick.

| | not at all (1) | a little (2) | moderately (3) | very much (4) |
|---|---------------------|-------------------|---------------------|--------------------|
| 1. Have you felt ashamed of any of your personal habits? | () | () | () | () |
| 2. Have you worried about what other people think of any of your personal habits? | () | () | () | () |
| 3. Have you tried to cover up or conceal any of your personal habits? | () | () | () | () |
| 4. Have you felt ashamed of your manner with others? | () | () | () | () |
| 5. Have you worried about what other people think of your manner with others? | () | () | () | () |
| 6. Have you avoided people because of your manner? | () | () | () | () |
| 7. Have you felt ashamed of the sort of person you are? | () | () | () | () |
| 8. Have you worried about what other people think of the sort of person you are? | () | () | () | () |
| 9. Have you tried to conceal from others the sort of person you are? | () | () | () | () |
| 10. Have you felt ashamed of your ability to do things? | () | () | () | () |
| 11. Have you worried about what other people think of your ability to do things? | () | () | () | () |
| 12. Have you avoided people because of your inability to do things? | () | () | () | () |
| 13. Do you feel ashamed when you do something wrong? | () | () | () | () |
| 14. Have you worried about what other people think of you when you do something wrong? | () | () | () | () |
| 15. Have you tried to cover up or conceal things you felt ashamed of having done? | () | () | () | () |
| 16. Have you felt ashamed when you said something stupid? | () | () | () | () |
| 17. Have you worried about what other people think of you when you said something stupid? | () | () | () | () |
| 18. Have you avoided contact with anyone who knew you said something stupid? | () | () | () | () |
| *19. Have you felt ashamed when you failed in a competitive situation? | () | () | () | () |

- | | | | | |
|--|-----|-----|-----|-----|
| *20. Have you worried about what other people think of you when you failed in a competitive situation? | () | () | () | () |
| 21. Have you avoided people who have seen you fail? | () | () | () | () |
| 22. Have you felt ashamed of your body or any part of it? | () | () | () | () |
| 23. Have you worried about what other people think of your appearance? | () | () | () | () |
| 24. Have you avoided looking at yourself in the mirror? | () | () | () | () |
| 25. Have you wanted to hide or conceal your body or any part of it? | () | () | () | () |

* Alternatives for populations where competition is not relevant:

19. Have you felt ashamed when you failed at something which was important to you?
 20. Have you worried about what other people think of you when you fail?

VALUING QUESTIONNAIRE

Please read each statement carefully and then circle the number which best describes how much the statement was true for you DURING THE PAST WEEK, INCLUDING TODAY.

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | |
|---|-----------------|---|---|---|---|---|-----------------|-------|
| | Not at all true | | | | | | Completely true | |
| 1) I spent a lot of time thinking about the past or future, rather than being engaged in activities that mattered to me | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 2) I was basically on "auto-pilot" most of the time | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 3) I worked toward my goals even if I didn't feel motivated to | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 4) I was proud about how I lived my life | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 5) I made progress in the areas of my life I care most about | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 6) Difficult thoughts, feelings or memories got in the way of what I really wanted to do | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 7) I continued to get better at being the kind of person I want to be | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 8) When things didn't go according to plan, I gave up easily | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 9) I felt like I had a purpose in life | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |
| 10) It seemed like I was just 'going through the motions', rather than focusing on what was important to me | 0 | 1 | 2 | 3 | 4 | 5 | 6 | _____ |

Progress: _____
Obstruction: _____

Appendix E
Treatment Outline

| Session | Treatment Components | Exercises/Content |
|---------|--|--|
| 1 | Informed Consent | <ul style="list-style-type: none"> • Review potential risks of treatment (e.g., emotional discomfort) • Discuss added risks of telepsychology (e.g., reduced guarantee of confidentiality, privacy issues) |
| | Limits to Confidentiality | <ul style="list-style-type: none"> • Risk of harming self or others and abuse of children or elderly |
| | Psychoeducation and Treatment Overview | <ul style="list-style-type: none"> • Basics of trichotillomania, behavioral model, environmental triggers, emotional and cognitive factors related to pulling. • Brief overview of what is to be expected throughout treatment |
| | Stimulus Control Assessment | <ul style="list-style-type: none"> • <i>Stimulus Control Assessment Form</i> • Introduce self-monitoring. Assign homework to monitor hair pulling during the coming week |
| 2 | Habit Reversal Training | <ul style="list-style-type: none"> • Awareness training • Competing response training |
| | Stimulus Control | <ul style="list-style-type: none"> • <i>Stimulus Control Assignment Sheet</i> • Identify individualized stimulus control techniques to be used in different contexts where pulling is more likely to occur |
| 3 | Valuing | <ul style="list-style-type: none"> • Define values. Discuss differences with goals • Complete <i>How Has Fighting Your Urges Affected You</i> and <i>Writing Your Epitaph</i> forms • Discuss how attempts to control pulling have gotten in the way of valued living |
| 4 | Creative Hopelessness and the Control Agenda | <ul style="list-style-type: none"> • Continue discussion of barriers to pursuing values • Help the client see how futile and damaging the control agenda is: <ul style="list-style-type: none"> • What is currently being done to control urges? • How well do these strategies work in the short-term? • How well do they work in the long-term? • Discuss costs associated with the current strategies • Is the struggle with the urge becoming larger or smaller? • Two-Games metaphor • Homework: Assign <i>Paper in Shoe</i> exercise |

| | | |
|-----|-----------------------------------|---|
| 5 | Acceptance | <ul style="list-style-type: none"> • Examples of our inability to control bodily sensations, emotions, thoughts, as well as urges to pull • Discuss <i>Paper in Shoe</i> exercise • Introduce willingness as an alternative to the control agenda • Clarify the acceptance of urges verses the acceptance of non-valued behavior |
| | Behavioral Commitments | <ul style="list-style-type: none"> • Develop behavioral commitment exercises to practice skills outside of session • Opportunities to follow values instead of controlling urges • Success is determined by whether task is completed, not by the levels of urges or distress • Openness to experience, not tolerance • <i>Behavioral Commitment Worksheet</i> |
| 6–7 | Defusion | <ul style="list-style-type: none"> • Discussion about our minds not always acting in our best interest • Present various defusion exercises in an attempt to undermine the literality of language and the negative effects due to this • The number of exercises and order given are at the discretion of the therapist • Being Present • Tree-on-the-Road Metaphor • Acting without Reasons • Playing with Urges in a Different Way • Evaluation versus Description • The Pull of Your Mind • Take Your Urges with You • Talking for the Client |
| | Behavioral Commitments | <ul style="list-style-type: none"> • Agree to engage in new behavior commitment exercise in addition to previous ones |
| 8 | Acceptance and Defusion as Skills | <ul style="list-style-type: none"> • In-session exposure exercises • Done in attempt to “make friends” with the urges, not necessarily reduce them • During these exercises the therapist will review acceptance, defusion, and values in the moment, as needed |
| | Behavioral Commitments | <ul style="list-style-type: none"> • Ask the client to complete <i>Making Friends with Your Urges</i> worksheet before next session |

| | | |
|----|---------------------------|---|
| | | <ul style="list-style-type: none"> • Agree to engage in new behavior commitment exercise in addition to previous ones |
| 9 | Practicing ACT Skills | <ul style="list-style-type: none"> • Continue with in-session exposure exercises • Allow them to practice ACT skills |
| | Relapse Prevention | <ul style="list-style-type: none"> • Ask the client to review the therapy up to this point • Review important topics that have been discussed in past sessions |
| | Behavioral Commitments | <ul style="list-style-type: none"> • Agree to engage in new behavior commitment exercise in addition to previous ones |
| 10 | Review | <ul style="list-style-type: none"> • Discuss and review what has been learned throughout therapy • Review areas of importance for the client and clarify areas where the client might be confused |
| | Relapse Prevention | <ul style="list-style-type: none"> • Discuss lapse versus relapse • Vigilance in using habit reversal training • Increase in cognitive fusion • Returning to old agenda |
| | Celebrate Accomplishments | <ul style="list-style-type: none"> • Congratulate client on their progress • Answer any questions about future issues |

Eric Lee

Curriculum Vitae

EDUCATION

- Aug 2014 – Present Doctoral Candidate
Clinical and Counseling Psychology
Utah State University
Dissertation: *Telepsychotherapy for the Treatment of Trichotillomania: A Randomized Controlled Trial*
- Aug 2014 M.A. in Clinical Psychology
University of Houston – Clear Lake
Thesis: *Thought Control and Emotion Regulation Strategies' Relationship with Treatment Outcome in Obsessive-Compulsive Disorder*
- May 2011 B.S. in Psychology
Utah State University

RESEARCH EXPERIENCE

- Jan 2015 – Present **Research Assistant**
Avalon Hills Eating Disorder Program
Supervisor: Michael P. Twohig, Ph.D.
 - Developed online assessment battery for patients.
 - Analyze and communicate results to therapists.
 - Built and maintained research database.
 - Data analysis, data collection, and research design.
 - Collaborated with administration and treatment team to publish research.
- Jul 2014 – Present **Graduate Research Assistant**
Center for Clinical Research
Utah State University
Supervisor: Michael P. Twohig, Ph.D.
 - Collaborate with research team and develop original research proposals.
 - Follow treatment protocols and provide therapy to research participants.
 - Data analysis, data collection, and research design.
 - Utilize SPSS, AMOS, and R statistical software.
- Jul 2012 – Jun 2014 **Research Assistant**
Houston OCD Program
Supervisor: Thröstur Björgvinsson, Ph.D.
 - Developed and maintained SPSS and REDCap databases.
 - Contributed to original research ideas and data analysis.

- Administered semi-structured assessments to patients, scored and analyzed results, and communicated findings to behavior therapists through written reports.

Aug 2011 –
May 2014

Graduate Research Assistant

Anxiety Research Team

University of Houston – Clear Lake

Supervisor: Chad T. Wetterneck, Ph.D.

- Collaborated with research team and developed original research ideas.
- Grant proposals and manuscript writing.
- Data analysis, data collection, and research design.
- Utilized SPSS and AMOS statistical software.

Sep 2010 –
May 2011

Research Assistant

Severe Behavior Clinic

Utah State University

Supervisor: Andrew L. Samaha, Ph.D.

- Children in a university severe behavior clinic.
- Assisted with research and treatment of ADHD, autism, oppositional defiance, behavior problems.
- Functional analysis, behavioral treatment, data collection, and data analysis.

Mar 2010 –
May 2011

Research Assistant

Early Intervention Research Institute

Utah State University

Supervisor: Lori A. Roggman, Ph.D.

- Experimental design, data collection, and data analysis.
- Coded parent-child behavior for study.

CLINICAL TRAINING AND EXPERIENCE

Aug 2014 –
Present

Graduate Assistant Therapist

Center for Clinical Research

Utah State University

Supervisor: Michael P. Twohig, Ph.D.

Total hours: 700.25, Direct contact hours: 328.5

- Adult, adolescent, and child clients in a university research clinic.
- Treated generalized anxiety, OCD, trichotillomania, and perfectionism.
- Acceptance and commitment therapy, cognitive behavioral therapy, and habit reversal training.

Jun 2016 –
May 2017

Practicum Student Therapist

Brigham City Cardiac Wellness

Brigham City Community Hospital, Brigham City, Utah

Supervisor: Scott DeBerard, Ph.D.

Total hours: 210.5, Direct contact hours: 100.5

- Counseled adult clients who experienced a recent cardiac event in a hospital cardiac rehabilitation setting.
- Taught stress management skills classes to patients and hospital staff.
- Utilized medical charts and medical staff to develop treatment plans.
- Motivational interviewing, cognitive behavior therapy, and acceptance and commitment therapy.

Aug 2015 – **Practicum Student Therapist**

May 2016 USU Anxiety Clinic

Utah State University

Supervisor: Michael P. Twohig, Ph.D.

Total hours: 305.5, Direct contact hours: 125.5

- Adult, adolescent, and child clients at a university community clinic.
- Treated generalized anxiety, OCD, trichotillomania, misophonia, and panic.
- Acceptance and commitment therapy.

Aug 2014 – **Practicum Student Therapist**

Aug 2015 USU Community Clinic

Utah State University

Supervisor: Susan Crowley, Ph.D.

Total hours: 347.5, Direct contact hours: 84.5

- Adult, adolescent, and child clients at a university community clinic.
- Treated generalized anxiety, depression, trichotillomania, panic, and interpersonal functioning.
- Cognitive behavioral therapy, acceptance and commitment therapy, interpersonal therapy, and motivational interviewing.

Jun 2013 – **Practicum Student Therapist**

Dec 2013 Center for Mind Body Health, Houston, Texas

Supervisor: Gwen Brehm, LPC, LMFT

Total hours: 323, Direct contact hours: 75

- Adult and child clients at a private practice.
- Treated OCD, generalized anxiety, trichotillomania, excoriation, and depression.
- Acceptance and commitment therapy, cognitive behavioral therapy, dialectical behavior therapy, and habit reversal training.

May 2013 – **Practicum Student Therapist**

Dec 2013 Psychological Services Clinic

University of Houston – Clear Lake

Supervisor: Chad T. Wetterneck, Ph.D.

Total hours: 197, Direct contact hours: 50

- Adult, adolescent, and child clients at a university community clinic.

- Treated generalized anxiety, OCD, panic, depression, Tourette and tic disorders, and interpersonal functioning.
- Acceptance and commitment therapy, habit reversal training, cognitive behavioral therapy, and functional analytic psychotherapy.

Jun 2012 – **Residential Counselor**
 Jun 2014 Houston OCD Program, Houston, Texas
 Director: Thröstur Björgvinsson, Ph.D.

- Adult clients in a residential treatment setting.
- Collaborated with treatment team of counselors and behavior therapists.
- Treated severe OCD, OC-spectrum, and anxiety disorders.
- Worked with behavior therapists and patients to develop and execute behavior plans that emphasized exposure and response prevention.
- Taught psychoeducational group sessions.
- Cognitive behavioral therapy.

Jun 2012 – **Practicum Student Therapist**
 Dec 2012 Psychological Services Clinic
 University of Houston – Clear Lake
 Supervisor: William D. Norwood, Ph.D.
 Total hours: 70, Direct contact hours: 17

- Adult, adolescent, and child clients at a university community clinic.
- Treated generalized anxiety, depression, and interpersonal functioning.
- Acceptance and commitment therapy and cognitive behavioral therapy.

GRANT ACTIVITY

- Dec 2011 Trichotillomania Learning Center, Inc.
Investigating the Role of Shame, Avoidance of Intimacy, and Self-Compassion in Trichotillomania
 Co-investigator; \$3,000, not funded
- Dec 2011 Trichotillomania Learning Center, Inc.
Investigating the Efficacy of Comprehensive Behavioral Treatment for Trichotillomania Using Telehealth: A Randomized Controlled Trial
 Co-investigator; \$20,000, not funded

PUBLICATIONS

Published Manuscripts:

12. Rohani, F., Rasouli-Azad, M., Twohig, M. P., Ghorishi, F. S., **Lee, E. B.**, & Akbari, H. (in press). Preliminary test of group acceptance and commitment therapy on obsessive-

compulsive disorder for patients on optimal dose of selective serotonin reuptake inhibitors. *Journal of Obsessive-Compulsive and Related Disorders*.

11. **Lee, E. B.**, Sherwood, J. A., Crosby, J. M., & Twohig, M. P. (in press). Can distressing sexual thoughts be regulated? Experiential willingness vs distraction. *Journal of Cognitive Psychotherapy*.
10. **Lee, E. B.**, Ong, C. W., Twohig, M. P., Lensegrav-Bensen, T., & Quakenbush-Roberts, B. (2017). Increasing body image flexibility in a residential eating disorder facility: Correlates with symptom improvement. *Eating Disorders: The Journal of Treatment & Prevention*, 1–15.
9. **Lee, E. B.**, Smith, B. M., Twohig, M. P., Lensegrav-Bensen, T., & Quakenbush-Roberts, B. (2017). Assessment of the body image acceptance and action questionnaire in a female residential eating disorder treatment facility. *Journal of Contextual Behavioral Science*, 6, 21–28.
8. Hong, J., **Lee, E. B.**, Bravo, M., Wetterneck, C. T., & Hart, J. M. (2017). Need to screen for clinical levels of OCD? Four questions are the key. *Bulletin of the Menninger Clinic*, 81(3), 1–17.
7. Bluett, E. J., **Lee, E. B.**, Simone, M., Lockhart, G., Lensegrav-Bensen, T., Quakenbush-Roberts, B., & Twohig, M. P. (2016). The role of body image psychological flexibility on the treatment of eating disorders in a residential facility. *Eating Behaviors*, 23, 150–155.
6. **Lee, E. B.**, Bistricky, S. L., Milam, A. C., Wetterneck, C. T., & Björgvinsson, T. (2016). Thought control strategies and symptom dimensions in obsessive-compulsive disorder: Associations with treatment outcome. *Journal of Cognitive Psychotherapy*, 30(3), 177–189.
5. Wetterneck, C. T., **Lee, E. B.**, Flessner, C. A., Leonard, R. C., & Woods, D. W. (2016). Personality characteristics and experiential avoidance in trichotillomania: Results from an age and gender matched sample. *Journal of Obsessive-Compulsive and Related Disorders*, 8, 64–69.
4. **Lee, E. B.**, An, W., Levin, M. E., & Twohig, M. P. (2015). An initial meta-analysis of Acceptance and Commitment Therapy for treating substance abuse. *Drug and Alcohol Dependence*, 15, 1–7.
3. **Lee, E. B.**, Steinberg, D. A., Phillips, L., Hart, J. M., Smith, A. H., & Wetterneck, C. T. (2015). Examining the effects of accommodation and caregiver burden on relationship satisfaction in caregivers of individuals with OCD. *Bulletin of the Menninger Clinic*, 79(1), 1–13.

2. Leonard, R., Knott, L., **Lee, E. B.**, Singh, S., Smith, A. H., Kanter, J. W., Norton, P. J., & Wetterneck, C. T. (2014). The development of the Functional Analytic Psychotherapy Intimacy Scale. *The Psychological Record*, 64, 647–657.
1. Wetterneck, C. T., **Lee, E. B.**, Smith, A. H., & Hart, J. M. (2013). Courage, self-compassion, and values in obsessive-compulsive disorder. *Journal of Contextual Behavioral Science*, 2, 68–73.

Book Chapters:

4. **Lee, E. B.**, Ong, C. W., & Twohig, M. P. (in press). Trichotillomania and excoriation disorder. In A. Maragakis and W. T. O'Donohue (Eds.), *Principle-based stepped care and brief psychotherapy for integrated care settings*. New York, NY: Springer Publishing.
3. Ong, C. W., **Lee, E. B.**, & Twohig, M. P. (in press). Hoarding disorder. In A. Maragakis and W. T. O'Donohue (Eds.), *Principle-based stepped care and brief psychotherapy for integrated care settings*. New York, NY: Springer Publishing.
2. Morrison, K. L., Smith, B. M., **Lee, E. B.**, & Twohig, M. P. (2017). Acceptance and commitment therapy for OC-spectrum disorders. In J. S. Abramowitz, D. McKay, & E. Storch (Eds.), *The Wiley Handbook of Obsessive Compulsive Disorders* (pp. 1175–1192). Hoboken, NJ: Wiley-Blackwell.
1. Smith, B. M., Bluett, E. J., **Lee, E. B.**, & Twohig, M. P. (2017). Acceptance and commitment therapy for OCD. In J. S. Abramowitz, D. McKay, & E. Storch (Eds.), *The Wiley Handbook of Obsessive Compulsive Disorders* (pp. 596–613). Hoboken, NJ: Wiley-Blackwell.

Encyclopedia Entry:

1. **Lee, E. B.** & Twohig, M. P. (2017). Trichotillomania Treatment. In Amy Wenzel (Ed.) *The SAGE Encyclopedia of Abnormal and Clinical Psychology* (pp. 3664–3667). Thousand Oaks, CA: SAGE.

PEER REVIEWED PRESENTATIONS

Oral Presentations:

8. **Lee, E. B.**, An, W., Levin, M., & Twohig, M. P. (2016, June). An Initial Meta-analysis of ACT for Substance Use Disorders. In Chin, F. (Chair), *Meta-Analysis in Contextual Behavior Science: A Symposium of Synthesis*. Presented at the 14th Annual Association for Contextual Behavioral Science World Conference, Seattle, WA.
7. **Lee, E. B.** (Chair), (2016, June). How Does ACT Enhance Our Understanding of Exposure? Symposium at the 14th Annual Association for Contextual Behavioral Science World Conference, Seattle, WA.

6. **Lee, E. B.**, Homan, K., Morrison, K. L., Smith, B. M., & Twohig, M. P. (2015, October). Acceptance and Commitment Therapy for Trichotillomania. In **Lee, E. B.** (Chair), *Contextual behavioral research across domains*. Symposium presented at the Rocky Mountain Association for Contextual Behavioral Science Regional Conference, Salt Lake City, UT.
5. Callaghan, G., Wetterneck, C. T., Maitland, D., Smith, A., **Lee, E. B.**, & Björgvinsson, T. (2014, June). The Functional Idiographic Assessment Template Questionnaire (FIAT-Q): Data for an assessment used in contextual behavioral interventions. In Wetterneck, C. T. (Chair), *Tools for clinical and research targets in the areas of interpersonal functioning and intimacy: Concepts and measures from Functional Analytic Psychotherapy*. Symposium presented at the Association for Contextual Behavioral Science 14th Annual World Convention, Minneapolis, MN.
4. Wetterneck, C. T., Leonard, R., Knott, L., Singh, S., **Lee, E. B.**, & Kanter, J. (2014, June). Exploring behavior analytic constructs of intimacy: The development and use of the Functional Analytic Psychotherapy Intimacy Scale. In Wetterneck, C. T. (Chair), *Tools for clinical and research targets in the areas of interpersonal functioning and intimacy: Concepts and measures from Functional Analytic Psychotherapy*. Symposium presented at the Association for Contextual Behavioral Science 14th Annual World Convention, Minneapolis, MN.
3. **Lee, E. B.**, Wetterneck, C. T., Smith, A. H., & Hart, J. M. (2012, April). *The relationship between values and obsessive-compulsive disorder*. Presented at the 18th Annual Student Conference for Research & Creative Arts, Houston, TX.
2. Zwecker, N. A., Anderson, E. R., Fullerton, G. Björgvinsson, T., & **Lee, E. B.** (2013, April). *OCD and comorbid disorders: Implications for treatment and outcome*. Presented at the Anxiety and Depression Association of America Conference, La Jolla, CA.
1. **Lee, E. B.**, Zwecker, N. A., Anderson, E. R., Fullerton, G. & Björgvinsson, T. (2013, April). *A review of OCD and comorbid disorders*. Presented at the 19th Annual Student Conference for Research & Creative Arts, Houston, TX.

Poster Presentations:

23. **Lee, E. B.**, Ong, C. W., Twohig, M. P., Lensegrav-Benson, T., Quakenbush-Roberts, B. (2017, November). *Body Image Flexibility and Symptom Improvement in a Residential Eating Disorder Facility*. To be presented at the Association for Behavioral and Cognitive Therapies 51st Annual Convention, San Diego, CA.
22. **Lee, E. B.**, Homan, K., Morrison, K. L., & Twohig, M. P. (2016, October). *Acceptance and commitment therapy for trichotillomania*. Presented at the Association for Behavioral and Cognitive Therapies 50th Annual Convention, Special Interest Group Poster Exposition, New York, NY.

21. Kuczynski, A. M., Epistola, J., Mier-Chairez, J., Stowe, T., **Lee, E. B.**, Singh, S., Flaherty, B. P., Dudek, J. E., Tsai, M., Kanter, J. W. (2016, June). *Measuring awareness, courage, and love as a contextual behavioral interpersonal process model for the development of intimacy*. Presented at the 14th Annual Association for Contextual Behavioral Science World Conference, Seattle, WA.
20. **Lee, E. B.**, Bluett, E. J., Ong, C. W., Lockhart, G., Twohig, M. P., Lensegrav-Bensen, T., & Quakenbush-Roberts, B. (2016, June). *Psychological flexibility as a predictor of quality of life and eating disorder risk in a female residential treatment setting*. Presented at the 14th Annual Association for Contextual Behavioral Science World Conference, Seattle, WA.
19. Bluett, E. J., **Lee, E. B.**, Lockhart, G., Simone, M., Twohig, M. P., Lensegrav-Bensen, T., & Quakenbush-Roberts, B. (2015, November). *Efficacy and clinical response rates of acceptance and commitment therapy for eating disorders in a residential setting*. Presented at the Association for Behavioral and Cognitive Therapies 49th Annual Convention, Special Interest Group Poster Exposition, Chicago, IL.
18. **Lee, E. B.**, Bistricky, S. L., Milam, A. C., Wetterneck, C. T., & Björgvinsson, T. (2014, November). *Thought control strategies and obsessive-compulsive disorder dimensionality*. Presented at the Association for Behavioral and Cognitive Therapies 48th Annual Convention, Special Interest Group Poster Exposition, Philadelphia, PA.
17. **Lee, E. B.**, Singh, S., Knott, L. E., Smith, A. H., Wetterneck, C. T., & Kanter, J. (2013, November). *Validation of the functional analytic psychotherapy intimacy scale*. Presented at the Association for Behavioral and Cognitive Therapies 47th Annual Convention, Nashville, TN.
16. Knott, L. E., **Lee, E. B.**, Singh, S., Smith, A. H., Norton, P. J., & Wetterneck, C. T. (2013, November). *Demographic differences in the functional idiographic assessment template*. Presented at the Association for Behavioral and Cognitive Therapies 47th Annual Convention, Nashville, TN.
15. Singh, S., Knott, L. E., **Lee, E. B.**, & Wetterneck, C. T. (2013, November). *Experience of shame within pathological skin picking*. Presented at the Association for Behavioral and Cognitive Therapies 47th Annual Convention, Nashville, TN.
14. Singh, S., **Lee, E. B.**, Knott, L. E., & Wetterneck, C. T. (2013, November). *Psychological inflexibility and intimacy and interpersonal difficulties within obsessive-compulsive spectrum conditions*. Presented at the Association for Behavioral and Cognitive Therapies 47th Annual Convention, Special Interest Group Poster Exhibition, Nashville, TN.
13. **Lee, E. B.**, Knott, L., Singh, S., & Wetterneck, C. T. (2013, July). *Barriers to treatment and the experience of shame for individuals with obsessive-compulsive spectrum*

conditions. Presented at the 20th Annual Conference for the International Obsessive Compulsive Disorder Foundation, Atlanta, GA.

12. Hong, J., Bravo, M., Wetterneck, C. T., & **Lee, E. B.** (2013, July). *Evaluation of the Copperfield-Clear Lake Screener in determining obsessive-compulsive disorder*. Presented at the 20th Annual Conference for the International Obsessive Compulsive Disorder Foundation, Atlanta, GA.
11. Rinehart, K.L., Harrison, L.E., Springer, K., Chasson, G.S., VanKirk, N., **Lee, E. B.**, Wetterneck, C.T., Hart, J., Kertz, S., Björgvinsson, T. (2013, July). *Sudden gains in obsessive-compulsive disorder symptoms in patients with severe symptom presentation: A pilot study*. Presented at the 20th Annual Conference for the International Obsessive Compulsive Disorder Foundation, Atlanta, GA.
10. Harrison, L. E., Rinehart, K. L., **Lee, E. B.**, Chasson, G. S., Wetterneck, C. T., Hart, J. M., Kertz, S., & Björgvinsson, T. (2013, April). *Sudden gains in obsessive compulsive disorder symptoms in patients with severe symptom presentation*. Presented at the Anxiety and Depression Association of America Conference, La Jolla, CA.
9. Broussard, J. M., Benoit, B. A., **Lee, E. B.**, Short, M. B. (2012, November). *Video games and their impact on behavior*. Presented at the Association for Behavioral and Cognitive Therapies 46th Annual Convention, Special Interest Group Poster Exposition, National Harbor, MD.
8. **Lee, E. B.**, Wetterneck, C. T., Steinberg, D. S., Smith, A. H., & Hart, J. M. (2012, July). *The relationship between values and obsessive-compulsive disorder*. Presented at the 19th Annual International Obsessive-Compulsive Disorder Foundation Conference, Chicago, IL.
7. **Lee, E. B.**, Wetterneck, C. T., French, C., Smith, A. H., & Hart, J. M. (2012, July). *Caregiver burden and family accommodation: Perspective of individuals with obsessive-compulsive disorder*. Presented at the 19th Annual International Obsessive-Compulsive Disorder Foundation Conference, Chicago, IL.
6. Steinberg, D. S., Wetterneck, C. T., **Lee, E. B.**, Smith, A. H., & Hart, J. M. (2012, July). *Perceptions of threat from emotion: The relationship between threatening emotions and OCD severity*. Presented at the 19th Annual International Obsessive-Compulsive Disorder Foundation Conference, Chicago, IL.
5. **Lee, E. B.**, Broussard, J., Wetterneck, C. T., & Holman, G. I. (2012, July). *Validation of the Functional Analytic Psychotherapy Impact Scale for Therapists (FAPIS-T)*. Presented at the 10th Annual Association for Contextual Behavioral Science World Conference, Washington, D.C.

4. **Lee, E. B.**, Wetterneck, C. T., Smith, A. H., & Hart, J. M. (2012, July). *The Role of values in obsessive-compulsive disorder severity*. Presented at the 10th Annual Association for Contextual Behavioral Science World Conference, Washington, D.C.
3. **Lee, E. B.**, Broussard, J., Wetterneck, C. T., & Peres, S. C. (2012, April). *Therapists and therapists-in-training: Differences in risk-taking and in-session focus*. Presented at the 18th Annual Student Conference for Research & Creative Arts, Houston, TX.
2. Wetterneck, C. T., Flessner, C. A., Woods, D. W., **Lee, E. B.**, Manos, R., & Steinberg, D.S. (2011, November). *Personality characteristics and experiential avoidance in Trichotillomania: Results from an age and gender matched sample*. Presented at the Association for Behavioral and Cognitive Therapies 45th Annual Convention, Special Interest Group Poster Exposition, Toronto, ON.
1. Anderson, S. & **Lee, E. B.** (2011, April). *Father support of toddler language development*. Presented at the Rocky Mountain Psychological Association Conference, Salt Lake City, UT.

PROFESSIONAL ACTIVITIES

Guest Reviews:

Clinical Psychology Review

Journal of Obsessive Compulsive and Related Disorders

Journal of Clinical Dermatology & Therapy

Memberships in Professional Organizations:

Association for Behavioral and Cognitive Therapies

ABCT Tic and Impulse Control Disorders Special Interest Group

Association for Contextual Behavioral Science

International Obsessive-Compulsive Disorder Foundation

Anxiety and Depression Association of America

AWARDS

| | |
|------|--|
| 2016 | Elwin C. Nielsen Scholarship Walter R. Borg Applied Practice and Research Award |
| 2013 | Jesse H. & Mary Gibbs Jones Scholarship Student Admissions Scholarship |
| 2012 | International OCD Foundation, OCD Texas Research Award |

TRAININGS / WORKSHOPS ATTENDED

| | |
|----------|--|
| Sep 2014 | Getting Started as a Successful Proposal Writer and Academician Workshop Utah State University |
| Sep 2014 | The Center for Clinical Research's 3 rd Annual Acceptance and Commitment Therapy 2-Day Workshop Conducted by Michael P. Twohig Ph.D., Utah State University |

- Nov 2012 Acceptance and Commitment Therapy 3-Day Workshop
 Learning ACT: An Experiential Introduction
 Conducted by Amy R. Murrell Ph.D., University of North Texas
- Feb – Level II Weekly Functional Analytic Psychotherapy Training Group
 Apr 2012 Conducted by: Chad T. Wetterneck, Ph.D., University of Houston – Clear
 Lake and Angela Smith, M.A., University of Houston

PROFESSIONAL / TEACHING EXPERIENCE

- Sep 2017 **Workshop Presenter**
 The Center for Clinical Research's 6th Annual Acceptance and
 Commitment Therapy 2-Day Workshop
 Co-presented with Michael Twohig, Ph.D.
- Aug 2017 **Workshop Presenter**
 Utah Association for Behavioral Analysis Annual Conference
 "An Introduction to Acceptance and Commitment Therapy for Behavior
 Analysts" 1-Day Workshop
- Jan 2017 **Invited Speaker**
 Box Elder School District
 Find Your Balance – Employee Health Program
 "Sleep Hygiene and Stress Management"
- Mar 2016 **Guest Lecturer**
 Utah State University
 Trichotillomania
 Psychology 3210: Abnormal Psychology
- Mar 2016 **Invited Speaker**
 Utah State University
 Mental Health is No Joke Week
 "Why Can't I Stop These Thoughts?"
- Oct 2015 **Guest Lecturer**
 Utah State University
 Obsessive-Compulsive Disorder
 Psychology 3210: Abnormal Psychology
- Aug 2014 – **Instructor**
 May 2015 Utah State University
 Psychology 4950: Undergraduate Apprenticeship
 Taught two semesters
- Aug 2012 – **Teaching Assistant**

| | |
|------------------------|---|
| Dec 2012 | University of Houston – Clear Lake Basic Psychotherapy Skills |
| Jan 2011 – May 2011 | Teaching Assistant Utah State University History & Systems of Psychology |
| Aug 2010 – Dec 2010 | Teaching Assistant Utah State University Applied Behavior Analysis |
| Sep 2010 – May 2011 | Volunteer Tutor Logan High School, Logan, Utah |